THE AMERICAN GAS LIGHT JOURNAL

PUBLISHING OFFICE No. 42 PINE STREET

DEVOTED TO THE INTERESTS OF ILLUMINATION, HEATING, MECHANICAL, CHEMICAL AND GENERAL SCIENCE.

VOLUME XCIII., No. 18. Whole No. 1,847. | NEW YORK, MONDAY, OCTOBER 31, 1910. | $3 PER ANNUM, IN ADVANCE.

A. M. CALLENDER & CO., Proprietors. C. H. WADELTON, Manager. THOMAS J. CUNNINGHAM and ELBERT P. CALLENDER, Editors.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND-CLASS MATTER.

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BRIEFLY TOLD.

THE TRIP OF THE AMERICAN GAS INSTITUTE TO THE NAVY YARD.—It is perhaps a trifle too far back to recur to the outing of the last day of the American Gas Institute meeting in New York; but an outline of that which was seen and done will surely be worth the telling and the reading. The programme provided for a steamboat trip, the steamer "Shinnecock" to be the transport, the points of starting and finishing being the West 42d street pier, and of debarkation the East 31st street pier, with a notable visit between times to the great hive on Wallabout Bay, East river, where the United States naval authorities maintain a model navy yard, out of which a first-class battleship can be turned almost as quickly as in any other naval yard in the world, and with expanse of water broad enough and deep to float many of these high type warriors of the ocean. The start was made in due time the morning of October 21st, and although lowering skies and a sullen east wind were the accompaniments of the morning, guests to the number of 340 were under the Committees' care. The trip up the Hudson was accomplished with speed and success, the turning point being just beyond the noble pile on the Hudson's east bank, which marks the resting place of the Nation's illustrious hero, General Ulysses S. Grant. Returning the "Shinnecock" made her way down the Hudson, to the ever-famous Battery, now, however, shorn of much of its natural beauty, thence into and up the East river, into Wallabout Bay, where the landing for the Yard was made, right alongside the "Dixie," of Uncle Sam's lesser fleet. On shore auto conveyors were in waiting to take the visitors on a tour of inspection of the Yard. Those who have had their first inspection of this famous government marine station had a good object lesson explanatory of why the naval budget occasionally reaches high figures. And this knowledge was further accentuated or increased by a cursory inspection of the man-of war "Florida," a beautifully impressive figure of construction of the battleship type. The inspection ended, a short march brought the visitors to the portals of a building numbered "13." The figures in this instance were really indicative of peace rather than confusion, of plenty rather than famine. On the second floor of "No. 13" was the reception room and luncheon hall as well; and here the deft hands of decorator and caterer had worked wonders. The walls and center were draped and festooned with handsome exemplars of the flags of all Nations, and Maresi never prepared a better put up or better served luncheon than that in which the Institute served. This from its serving is too far to dwell upon its pleasures, so suffice it to say that it was enjoyable and that it was enjoyed. After luncheon a further inspection of those noble monarchs of the waves, the "North Dakota and the "Connecticut," was made. This ended, the voyage to the East 31st street dock was undertaken, and speedily made, and amidst leavetakings and good wishes the Fifth Convention of the Institute was at an end.

In connection with this trip, and especially with reference to the part which concerns the invasion of the "Yard," it seems, to say the least, appropriate that mention of those who made it possible should be given. The visit was arranged through the courtesy and good offices of Rear Admiral E. H. C. Leutzè, U. S. N., Commandant of the U. S. Navy Yard. Captain L. S. Van Duzer, U. S. N., Captain of the Yard, made the arrangements, and the details were carried out by Lieut. Commander B. B. McCormick, U. S. N., Assistant to the Captain of the Yard, co-operating with Mr. R. W. Bush, Member Committee of Arrangements. The plannings to visit the U. S. Flagship "Connecticut," Capt. William R. Rush, U. S. N., commanding, and the U.S. Steamship "North Dakota," Capt. A. Gleaves, U. S. N., commanding, were made with Rear Admiral Seaton Schroeder, U. S. N., Commander-in-Chief, U. S. Atlantic Fleet, through his Chief of Staff, Capt. W. R. Shoemaker, U. S. N. It is needless to say that everything, to the smallest detail, was carried out as ordered.

To the gentlemen acting for the Committee of Arrangements all possible acknowledgment of the harmony and smoothness of their efforts should be made. The precision of President Cortelyou, the watchful suavity of Vice President Addicks, the geniality of Chief Bradley and the unceasing vigilance of under-Marshall O. H. Fogg, were truly exhibitions of ways and means that left nothing to chance for successful interweaving.

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[Special Editorial Correspondence.]

FOURTH ANNUAL CONVENTION, ILLUMINATING ENGINEERING SOCIETY.

BALTIMORE, MD., October 26th, 1910.

Dear JOURNAL: In more than one respect the Illuminating Engineering Society did not follow custom and precedent at its fourth annual meeting, which was convened in McCoy Hall, Johns Hopkins University, Baltimore, the morning of the 24th inst. Technical bodies, of course, require for their proper development and growth meetings oftener than once a year, and it was hoped, in fact predicted with positiveness, that the various State gas associations affiliated with the American Gas Institute would meet that requirement amongst the gas fraternity, and while such predicting has in a measure been borne out, nevertheless the realization is not in any sense complete. The Illuminating Engineering Society, however, has successfully followed a plan, which has clothed the branches with less authority, by dividing the Society in Sections. Each Section has its own officers, and monthly meetings are the rule, in New York city,

Philadelphia, Boston and Chicago. The prior annual conventions were held successively in Boston, Philadelphia and New York, in each of which cities branches of the main Society are located; but Baltimore was decided upon this year, mainly from the fact that a specified course on Illuminating Engineering is to be given in Johns Hopkins University, the course to be commenced immediately after the convention. So much by way of preliminary. The Chairman of the Committee of Arrangements (Mr. V. R. Lansingh) called the meeting to order shortly after 10 A.M., of Monday, the 24th, and his preparatory signal was heard by an audience going well over the hundred mark. The Chairman made way for the President, Dr. E. P. Hyde, well-known to gas men in general for his hearty co-operation with the American Gas Institute in jointly helping to create a standard unit in the general work of the photometrician. Dr. Hyde in turn presented the Honorable Mayor of Baltimore, J. Barry Mahool. His greeting and welcome to the city were earnest and hearty, and not devoid of interest even to the sternest of the technicians who listened to his speech. He sketched the almost herculean efforts the people of the city had made to obliterate the disastrous effects of the $100,000,000 fire which devastated almost completely a goodly portion of the city in 1895. Improvements, aggregating in cost $40,000,000, were now successfully underway. In addition a new system of municipal piers and a complete reconstruction of the sewerage ramification were also in progress of completion. As we all know, Baltimore, as well befits the first city in the Union to maintain a paying gas plant in the States, is quite progressive in its planning for public lighting, and in its other public places and beautiful homes many handsomely arranged and technically accurate lighting schemes for private account are maintained. Following the Mayor's hearty greeting of the convention to the city the Society was welcomed by a man whose name is well-blazoned on the rolls of fame which list those who in their practical ways have accomplished an immensity of good as expounders of the laws that go toward forming from scholastic walks the men whose after deeds shall enlighten the world to greater brilliance—Dr. Ira Remsen, well beloved President of Johns Hopkins University. Sincerity, control and kindliness fairly beamed from him, but not for an instant was innate dignity ever sunk in the passages of his welcome to the Society. And well did the splendid scientist-director merit the acclaim that his speech evoked. The Dean's welcoming harmony was the preclude to the Presidential Address of Dr. Hyde, whose main theme was "The Goal of Illuminating Engineering." While it was not expected that a definite conclusion could be reached on a subject having so many remote phases, his admirable historical review, applied in or to the specter of a portent, made it evident that we must look to the application of the light source for further improvement of the existing conditions to a much greater degree than to further betterments in the light itself. With a source having selected radiation in the yellow and green, we can obtain 800 lumens per watt, and with an illuminant having a spectrum similar to average daylight it would be 300 lumens per watt; but this would leave out those wave-lengths above and below the visible spectrum, which had not been thoroughly investigated, and certainly must not be neglected. He criticized the methods employed by many illuminating engineers in basing their calculations almost entirely upon the quantity of illumination measured upon a test plane, neglecting the light which falls upon the ceiling, high lights, shadows, diffusion, etc. In closing he stated that the goal was not the perfection of an illuminant, but rather the development of an efficient, artistic, attractive and harmonious installation. The address was not discussed, but was referred to a committee (Doctor Elliott, Doctor Rosa and Prof. Dates) for further consideration and report.

The Chairman of the Entertainment Committee (Mr. Douglas Burnett) here announced the many and various social features incidental to the recess times of the convention. The listings included an automobile ride through the beautiful suburbs of beautiful Baltimore, trolley rides innumerable, reception, dance and banquet galore, which surely showed that Maryland hospitality was still as hearty and profuse as in the days of yore, when loyalist outvied localist in dispensing it.

The sub-Committee on Photometric Units handed in virtually a progress report, which was read by the Committee's Chairman, Dr. C. H. Sharp. The matter presented covered the terminology and symbology of many existing and proposed units, the whole being based mainly on the systems originated by Dr. Blondell in 1906. Some of the definitions moved one unto the cry of *spero melioras*; but of that anon. In the present Dr. Rosa sapiently suggested that some effort be made to obtain at least an expression of opinion from foreign scientists, especially those in Germany, regarding *lucidus ordo* in the grammar, of the definitions of terms engendered by the development of illuminating engineering. After quite a discussion (which was shared in by Dr. McAlester and Messrs. Millar, Pearson, Sterling, E. L. Elliott, Ware and Bond) the report was taken in the sense of being a progress report only.

The concluding business of the morning session proved of rather varied interest. A report on division of membership was handed in by the Chairman, Mr. W. L. Elliott, which recommended that there be a division of membership, at such time and in such manner as the Society, as an entirety, saw fit. The proposition was debated by Messrs. Marshall, Pearson, Elliott, Ware, Gartley, Wardlow and Keech, and out of the tangle that followed a motion to adopt it was succeeded by a successful one to accept it. The session was adjourned now until 2:30 P.M., and in the interim a group photograph was taken, the pictured having been suitably aligned along the steps to the Hall.

The afternoon session of the first day witnessed the departure of the women folks on the automobile trip, whereupon the members (at least, many of them) turned in for the afternoon's technical work. President Hyde, as active and suave as is his usual wont, began the assault upon the programme by introducing Mr. Williams as the reader of the paper by Mr. C. F. Oehlmann, of Denver, Col., on "Central Station Illuminating Engineering Department Work and Methods Applied by the Denver Gas and Electric Company." The author was unable to be present at the meeting, hence the impressing of Mr. Williams. The text detailed that the particular department under consideration comprised an illuminating engineer and his assistants; further, that 70 per cent. of the work done was in line with straightening out the ravels brought about by dissatisfied consumers. The various methods employed, and the means used to cause the same to become effective, were described at considerable length and with laudable clearness. The talk that ensued could hardly be dignified by the title of discussion, which should be all the more flattering to Mr. Oehlmann, in that the Swan Song of those who arose to comment on his presentation was set to commending the author's thoroughness in describing the Denver Company's well planned policies.

The paper by Prof. S. O. Most, of Groucher College, Baltimore, was next taken up. It dealt with "The Effect of Light on the Movement of Lower Organisms," and proved to be on a subject not heretofore touched on by any of the contributors to the Society's "Transactions." While not of general interest, Prof. Most presented the subject in such clever manner as to hold the attention of his hearers. The Professor's underlying theme concerned the movements of certain microscopic organisms under varying and various intensities of light.

The next number was by Mr. J. S. Codman, of Boston, the lines of which were devoted to a consideration of "Illuminating Engineering Sheets for the Calculating and Recording of Data." That the calculating gentleman from Boston had put time and thought into the subject, and that both had been availed of to right good purpose, were well attested by the compilations, forms, etc., that were presented. The paper, of course, admitted of no discussion.

Mr. Preston S. Millar, of New York, then gave a decidedly exhaustive story regarding "An Unrecognized Aspect of Street Illumination." To begin with, the paper covered many pages of matter, and its text is such that a flying abstract of its findings would really be unjust to him. However, amongst other matters noted, prominence is given to the importance of smooth and light colored steel surfaces as aids to efficient street lighting. If it did no other good, the discussion which followed assuredly brought out, in most forcible way, the almost complete lack of appreciation in which the general subject of street lighting has been held. Many of the ideas advanced were purely spontaneous, and the remarks of Dr. Sharp seemed to clearly, even if briefly, cover the situation. In the debate, Mr. Owens remarked that we should define our street system as well as light the road surfaces sufficiently, so that one imperative feature would be the placing of lights at street intersections, and that uniformity in illumination could only be successfully obtained when the light at the horizontal was not obscured, since this gave the pleasant and handsome appearance to the many ornamental installations in vogue. Others who discussed the paper were Messrs. Sweet, Ware, Ashe, Stickney, Marshall and Ives.

The members and guests of the Society are not the only ones interested in the subject in this city, for some 600 Baltimoreans listened to the short, but popular lecture on "Illuminating Engineer-

ing," by Mr. V. R. Lansingh, in McCoy Hall, the first evening of the regular sessions. The first day's proceedings were suitably and pleasantly terminated by an informal reception in the handsome parlors of the Hotel Belvidere, followed by a dance.

Second Day—Morning Session.

The Second day's proceedings were prefaced by a trolley outing for the ladies, the route running through many of the beautiful suburbs of lovely Baltimore. The attendance had grown amazingly and over 200 were ready for the intellectual fray when President Hyde sounded with his gavel for attention. His impromptu routine recital of "current events" was the signal for many outbursts of applause. He announced that up to the moment 212 had registered for the course of lectures at the Hopkins University, and that the campaign between meetings for additional members resulted in the placing of 534 additional names on the rolls, representing a percentage gain of 50. The President followed these statistics by introducing Mr. Norman Macbeth, who read his paper on "The Relations between Pressure and Light Output with Various Gas Lamps and Burners." The tests covered 8 types of open flame, 4 of upright, and 1 of inverted mantle burners, 81 individual or separate appliances having been tested. The tests were carried out at 1 to 8 (inclusive) inches pressure, and the results were calculated to show consumption, candle power and duty. As is usual with Mr. Macbeth's presentings, this story was well told and revealed the fact that his trials on the accounts stated were in no sense mere glossing. The discussion was largely of the order categorical, and the author was to a certainty right there with his replies. Amongst those who propounded queries were Messrs. Barrows, Jones, Harris, Ashe, Sharpe, Serrill, Rowe, Green, Miller, Hanlon, Fuerst, Hale and Owens. The latter stated that the question of pressure was of relatively small importance, since it could be controlled by means of regulation and that the question of quality was one which affected the performance of mantle buruers to a much greater extent. In closing Mr. Macbeth stated that the use of gas for illumination was due to the appreciation of the public for the beautifully soft light of a gas mantle, rather than from any particular efforts made by gas companies to place these in the hands of their consumers.

The succeeding number was the paper by Mr. H. E. Ives, whose lines were on "Some Spectral Luminosity Curves Obtained by Flicker and Equality-of-Brightness Photometers." It narrated the results of many observations, his conclusions in part being the following:

"Spectral luminosity curves obtained by several observers using the flicker and equality-of-brightness methods do not show exact agreement between the two methods. With different observers the relative positions of the two kinds of curves are different. At low illuminations the equality-of-brightness curves shift toward the blue, the flicker toward the red. Marked differences in the color sensibility of the five observers exist, as shown by each method. The flicker method possesses much greater sensibility than the equality-of-brightness method, the difference being greatest at high illuminations. The most important fact shown by this investigation is probably that the flicker method and the equality-of-brightness method give nearer the same values at high than at low illuminations."

The paper brought out a sharp discussion, participated in by Messrs. Ashe, Keech, Pearson, Ware, Sharp and Millar, which was covered by the reply from Mr. Ives, that comparisons of light sources, having different color characteristics, should be made only at laboratories. In accordance with the listings the next number called for was the paper by Messrs. J. S. Felton and A. J. Brady, whose joint offering was bound up in "The Temperature Rise Due to the Energy Radiated in the Lower Hemisphere from Different Light Sources." The paper was read by Mr. Brady, and in it the authors noted that they had tested 14 gas and 4 electric equipments to obtain the light and the heat distribution below the horizontal, the instruments being a photometer and a bolometer, respectively. Readings were taken at angles of 15°, and the results plotted upon polar diagrams. The results were shown by two methods, candle power *vs.* temperature rise. The heat radiations were found to be closely related to the light radiations from bare sources, and the effect of both inclosing and reflecting clear glassware was to increase the ratio of candle power over heat radiations. The comparison of the tungsten lamp and the inverted gas lamp with similar glassware show that the $\frac{\text{temperature use}}{\text{candle power}}$, directly underneath, was 1 to 3, and from 30° to the horisontal, 1 to 12. The effects of differing glassware upon the mantle gas lamp brought the rates 1 to 1 directly beneath, and to 1 to 1.5 on the horizontal. The discussion was not as complete as it should have been, possibly due to the fact that the author read rather than explained his paper. The final contribution to the morning session was an excellent "Report of Progress on Flame Standards," by Messrs. L. B. Rosa and E. C. Crittenden. It was read by Mr. Bosa, and it verily has much to commend it, for the authors surely put day and night into the gathering of facts for proper completing. This ended the morning sesion.

The final sitting of the convention was ushered in by an October shower, which did not in any sense detract from the numbers present at the call to order. Upon assuming the chair President Hyde announced that the lectures to be given would be printed in full and could be obtained in due time at an approximate cost of $5 per set, this being determinable when the subscription lists were completed. He then called for the discussion on the last paper of the prior evening. In the course of this Mr. W. H. Gartley noted that 75 per cent. of the gas made in this country was tested for candle power value, and that to his mind the pentane standard chimed in a much closer agreement with the gas being tested, due to the change in atmospheric conditions, than did any other standard. Dr. Elliott condemned, as he often did before, the pentane lamp, owing to the trouble which he had experienced in obtaining a satisfactory agreement in the readings. Mr. Crittenden replied to Mr. Gartley's remarks by stating that the Hefner was the equal of the pentane standard as regards changes due to humidity. Others joining in the discussion were Messrs. Baird, Cody and Morton.

Dr. A. H. Elliott, as Chairman of the Committee on President's Address, reported that, owing to the very nature of the message, no action was necessary, other than to accept it, which, of course, was immediately done. The final 2 papers, respectively, on "The Value of Illuminating Engineering to the Commercial Man," by Mr. W. J. Serrill, of Philadelphia, and "The Practical Value of Illuminating Engineering to the Central Station," by Mr. John F. McGilchrist, of Chicago, were disposed of, and the technical side of the programme was at an end.

At this point Mr. W. H. Pearson announced that the Chicago Board of Trade invited the Society to hold its next annual meeting in that city. Mr. Miller moved a vote of thanks to the various committees whose hard and consistent work on the tasks assigned them had caused this to be the most successful convention of the Society. This was carried to the accompaniment of prolonged applause. And thereupon the convention was declared adjourned.

The closing of the convention made way for a much more important function, the opening exercise of the course of lectures on "Illuminating Engineering," which was begun at 4:30 P.M., under the guidance of Dr. Ira Remsen, President Johns Hopkins University. After a short speech of welcome, Dr. E. P. Hyde, replied for the Society, and he was succeeded by the following representatives of the various organizations with which they are connected:

Herbert A. Wagner, Baltimore Consolidated Gas and Electric Company, representing President Murray, Association of Edison Illuminating Companies.

W. M. Freeman, President, New England Electric Light Association.

Wm. C. Morris, Vice-President, American Gas Institute.

J. B. Whitehead, for Am. Inst. Electric Engineers.

Samuel Theobald, M.D.

Wendell Reber, M.D.

J. R. Sloan, Association Railway Electrical Engineers.

During the stay in Baltimore there were very many evidences of hearty hospitality given. But it is not to be gainsaid that the banquet was the star happening of a firmament that bustled with stars. The Hotel Belvidere (and take it from me, it is in every excellent and satisfactory sense a hotel) folks fairly outdid themselves. Over 200 enjoyed its mental and gustatory joys and pleasures, and Boss Harries, as Toastmaster, was all to the condiment. Before all and above all, though, the glory to me of the whole affair was to note the presence of our own "Charlie" Dickey, who has emerged triumphant from a long and arduous conflict with an illness that all but conquered. Hail to him and length of life to him, whose career has been of the kind that well stands the strains to which fealty and friendship are often subjected.—O.

[Continued from page 782.]

Liability of Gas Companies for Injuries Resulting from Escape of Gas.

[Prepared for the JOURNAL, by MR. JOHN EDSON BRADY, Attorney-at-Law.]

INJURIES CAUSED BY INHALATION.

Contributory Negligence.—When the person injured has himself been guilty of negligence contributing to bring about his injuries he cannot hold the gas company liable, even though the company has also been negligent. The question of what amounts to contributory negligence is one which is usually left to the jury. Ordinarily the burden is upon the plaintiff to show that he exercised due care in respect to the occurrence from which the injury arose. But this, although, in form, a proposition to be established affirmatively, need not be proved by affirmative testimony addressed directly to its support. It may be shown by evidence which excludes fault. Smith *v.* Boston Gas Light Co.; 129 Mass., 318.

An action was brought to recover damages for the death of a horse caused by escaping gas. The gas had been leaking all afternoon and the defendant Company sent its men to make the necessary repairs. At 6 o'clock they finished, declaring that the work was done. An hour or two later the plaintiff locked his barn. At the time he noticed the smell of gas, which he remarked to those who were with him. It was held that, whether the plaintiff was guilty of contributory negligence in locking the barn under such circumstances was a question for the jury, and that the jury was warranted in finding that the plaintiff was not contributorily negligent. The fact that there had been a leak and an odor of gas all afternoon tended to account for the presence of gas in the barn, and that, coupled with the fact that skilled workmen had been engaged in repairs, and had finished their work, led naturally to a presumption that the odor perceptible was due, not to an undiscovered leak, but to the escape of gas before the repairs of the afternoon had been made. Lee *v.* Troy Citizens Gas Company; 98 N. Y. 115 (1885).

Three days before the plaintiff was injured by inhaling illuminating gas, it appeared, in the case of Appelbach *v.* Consolidated Gas Company; 204 Pa., 570 (1903), that there had been an explosion of gas in a house across the street. Neither this house, nor the one in which the plaintiff lived, was piped for gas, and there were no gas pipes in the street between them nor within 125 feet of the plaintiff's house. The smell of gas had been noticeable in the vicinity for several days, but no one knew where the gas came from. And it was never clearly shown whether the gas which the plaintiff inhaled was forced by pressure through the 125 feet of earth and rocks, or passed through the pipe into an abandoned mine which was under the street and thence to the surface, or whether it escaped from the pipes of the Company at all, or was generated in the mine which was then on fire. It was held that the plaintiff was not guilty of contributory negligence, as a matter of law, in sleeping in the basement of his house. The fact that the odor of gas was stronger in the cellar than in other parts of the house was not notice to the plaintiff that gas was entering the house through the earth around it, for this might have been due to poor ventilation in the cellar. And without knowledge that the gas was entering through the cellar the danger of sleeping in an adjoining room was not so manifest as to be declared contributory negligence by the court as a matter of law.

Whether or not a patron of a hotel, who was asphyxiated while sleeping in her room, was guilty of contributory negligence in not having removed from the hotel, nor in having failed to take other precautions for her safety, where it appeared that gas had been escaping into other rooms of the hotel for some weeks prior to the fatal accident, was held, in the case of Richmond *v.* Gay; 103 Va., 320; 49 S. E. Rep., 482, to be a question for the jury to determine. In that case the jury decided there was no contributory negligence.

Although it would seem that everyone must, at this day, be familiar with the odor of illuminating gas, the plaintiff, in Thompson *v.* Cambridge Gas Light Company; 201 Mass., 77; 87 N. E. Rep., 486, testified that the smell of gas was a new and strange sensation to her. That being the case it was held that she was not guilty of contributory negligence in failing to notify the Company when gas escaped from its mains and entered her house, and in remaining in the house until overcome by the gas.

Evidence.—In actions against gas companies for injuries sustained by the escape of gas the ordinary rules of evidence apply. The plaintiffs in the action of Hunt *v.* Lowell Gas Light Company; 90 Mass., 169 (1864), were visitors in the family of Aaron Hunt, in Lowell, Mass., at the time when they were made ill by the escape of the defendant's gas into the house of their host. The plaintiffs were permitted, over the objection of the defendant, to offer evidence that Aaron Hunt and his family had been in perfect health, up to the time when the gas escaped into their house, and that, immediately or soon after, every member of the family became seriously sick. It was held that this evidence was properly admitted. The sickness of the Hunt family was a collateral fact and was admissible for the purpose of showing the nature of the gas which came into the house, to the influence of which all the inmates were subjected alike. The evidence in such cases should be limited to the effect of the gas upon those who have in common, and under similar circumstances, inhaled it. How far the plaintiff should be permitted to go into particulars in offering such evidence depends somewhat upon the circumstances of the case, and must, within reasonable limits, be left to the discretion of the presiding judge.

Aaron Hunt also sued the Lowell Gas Light Company. The case is reported in 83 Mass., at page 343. The same conclusion was reached here with reference to the admissibility of evidence as to the sickness of other members of the household. It was further held that evidence in defense that the illness of the plaintiff and his family was typhoid fever, that prior occupants had had the same illness and had moved from the house on that account, was inadmissible.

Another action arising out of the same facts is that of Emerson *v.* Lowell Gas Light Company; 85 Mass., 410. The plaintiff introduced evidence tending to show that the defendants did not use due diligence, after receiving notice of the escape of gas, to find and stop the leak. They offered to call witnesses who passed along the street and lived in the neighborhood of the plaintiff's house at the time, to prove the extent to which the gas escaped into the street and neighborhood; but the judge rejected the evidence. The plaintiff also offered to show that a large number of houses in the neighborhood, the drains of which connected with the sewers, through which the gas was carried to the plaintiff's house, were filled with gas, and that wherever the gas entered sickness followed. They wished especially to show that the gas entered the house of one Clay, which was adjoining and back of the plaintiff's house, and was connected with the same sewer and by the same drain, and that the gas continued in the sewer to points beyond their house. But all this was rejected by the judge, who confined the testimony to the size of the leak and the amount of the gas which escaped. In holding that the testimony should have been admitted in part the court said: "It was competent for the plaintiff to show that gas had escaped from the defendant's pipe through the fracture into the sewers east of the plaintiff's house, and into such of the other houses of the neighborhood of the plaintiff as they (the defendant) had been notified that it had penetrated and entered. But evidence that it was in other houses than those into which they had knowledge it had entered was inadmissible, because their action could not in any degree have been, or have been required to be, influenced by facts of which they had received no information, and of which they were entirely ignorant."

The evidence of persons passing along the highway who noticed the escape of gas should not have been excluded. It was material in that it tended in some degree to show how rapidly, and in what quantities, the gas was escaping, and thereby afforded some means of judging as to the amount of force and labor which should be applied to arrest its further escape, and the alacrity with which it should be applied.

The evidence that, wherever the gas escaped from the defendant's pipe into any dwelling, sickness followed, was held to be properly excluded. Each separate and individual case must stand upon, and be decided by, the evidence particularly applicable to it. The attending circumstances may be so different that the occurrence of sickness in one house would have no tendency to show the cause of illness in the occupants of another house.

In an action to recover damages for the death of a child, two reputable physicians, of long practice and high standing, each of whom saw and carefully examined the child, one at the beginning, the other near the fatal termination of its sickness, each of whom was apprised of the conditions under which the sickness began, gave it as their deliberate opinion and judgment that the child died from the effects of the inhalation of gas. It was held that such testimony could not be rejected. Flaherty *v.* Scranton Gas Company; 30 Pa., Super. Ct., 446 (1906).

Quoting from the opinion: "Upon what principle, supported either by reason or authority, is such testimony in such a case to be rejected

or ignored? It is true that neither of these physicians had ever before treated or especially observed a case of this character. But their entire education and training were for the very purpose of enabling them to deal with the new forms of disease or the ever-changing conditions incident to familiar forms that constantly threaten humanity. If no physician is competent to form a sound judgment, except where present symptoms and conditions are precisely within the range of his own experience, it is hard to see how he could ever qualify himself to begin the practice of his high profession.

(To be Continued.)

Alldays' High Pressure Blowpipe.

The Alldays Onions Pneumatic Engineering Company (Limited), of Birmingham, England, in consonance with the recent great development in the supplying of gas under high pressures in the industrial field, have brought out a specially designed blowpipe for use in this connection. Following the description of it, given in a recent number of *The Gas World*, it is shown in the accompanying illustration

that a simple lever, gripped by the hand when using the blowpipe, governs the size of the flame at the will of the operator. The flexibility of control, with a gas pressure of 60 inches, will be seen from the following figures, as furnished by the Birmingham Gas Committee:

Gas Consumption, Cubic Feet per Hour.	Length of Flame, Inches.	Diameter of Flame, Inches.
25	8	1¼
50	10	1¾
85	14	2½
100	16	3

In each test the gas consumption was taken on a continuous run of 1 hour, but in actual practice the consumptions for each size of flame are much less, for obviously the operator would loose his hold several times during that period, and the flame would go out, leaving only the very small pilot light. The gas supply is controlled by a needle valve at the nozzle, so, no matter the quantity of gas that is passing, the pressure remains the same.

The Prevention of Accidents.

[Prepared for the 18th Meeting, Pacific Coast Gas Association, by Mr. John P. Coghlan, Manager, Claims Department, Pacific Gas and Electric Company.]

The introduction of machinery brought many new risks and hazards into all modern employments. At first the tendency was to consider the additional accidents which followed new appliances as mere incidents to improved methods and increased production; but time proved this a false view. It showed that, while every effort was made to make more and better machinery, little or nothing was done to insure safety in operation. Moreover, it demonstrated that additional accidents meant an extra outlay of capital in repairs and in damages for killed and injured workmen, and often a loss in production, in that each accident affected the temper and spirit of workmen, and thus reduced their interest and efficiency.

Once these conditions became manifest, employers in many industries set about to correct them. At first the effort was to prevent a repetition of accidents that had already occurred, and to that end, faults and defects that had caused injury were corrected and repaired. In other words, accidents had to occur before defects were seen and remedied; but eventually it was found that accidents could in a measure be foreseen. This discovery naturally led to a study of operating conditions, and finally to a detailed inspection intended to prevent accidents. Wherever inspection was taken up systematically it soon developed into well organized safety departments; so well in fact that to-day many industrial corporations maintain safety superintendents equal in rank to other heads of departments. These superintendents generally head an organized office force and a corps of trained inspectors. Usually their inspectors are experts in the operation of machinery and oftentimes in complicated methods of manufacture, and not infrequently they are specialists in the manufacture and operation of one particular class of machinery.

These inspectors devote all their time to studying the causes of accidents and the means of preventing them. They carry on a detailed inspection, reporting every defect. Often they report to their superintendent daily, frequently illustrating their work with photographs. In their reports they embody suggestions from foremen and superintendents, and occasionally from workmen. In all cases they accompany their reports with recommendations showing how and where defects in operation may be remedied.

In some corporations the recommendations of such inspectors are submitted by the safety superintendents to a board or committee. Usually this board or committee is made up of the superintendent himself, and two or four of his assistants. Sometimes it is composed of the superintendent, the casualty manager and an engineer.

In many corporations every accident is investigated by a committee specially appointed for that purpose. Oftentimes the committee is composed of foremen and superintendents; at other times of workmen taken from the department in which the accident under investigation occurred. In every instance the committee is authorized to make a complete investigation and to report how to avoid like accidents. Wherever a corporation has had the foresight to appoint either of these committees it usually has been progressive enough to adopt the recommendations submitted to it.

The United States Steel Corporation has maintained a permanent committee on the prevention of accidents since April 1st, 1908. This committee is composed of five members, selected from the most prominent casualty managers of the constituent companies. It employs a full corps of inspectors and considers some 200 recommendations a month. In the first year of its existence it put into effect over 2,000 improvements suggested by its inspectors. In some of the subsidiary companies of the Steel Corporation, two committees on accidents are permanently maintained in each mill or plant. One of these is called "the foremen's committee," the other "the workmen's committee."

The foremen's committee is generally composed of the plant superintendent, his chief mechanic and a department foreman or two. Some of the members are kept on the committee permanently, but the foremen are changed from time to time in order to give experience to the greatest number. Each month the committee makes a complete inspection of the plant. It not only examines machinery, but every detail of the plant, even to floors and stairways, and makes a report recommending such changes and improvements as may tend to prevent accidents. Should an accident occur during the month, the committee makes it the subject of a special investigation and a special report.

The workmen's committee is kept separate and distinct from the foremen's committee, and is made up of workmen exclusively. One month it may be composed of a machinist, an electrician and a carpenter; another month, of an engineer, a pipe fitter and a wireman, and so on till every man in the plant has had a term of service. The members of the committee are selected by the plant superintendent in consultation with his foremen. Each serves a month. The committee makes one inspection a week and reports in writing the result of its labors. As each member retires from the committee he is asked to continue his interest in the work and to report to succeeding committees anything conducive to his safety or to the safety of his fellow employees. In this way attention is held indefinitely, often to the extent that members of early committees go on making suggestions months after their terms of service have expired. In some plants it has been found advisable, apart from these committees, to employ special inspectors for certain kinds of machinery, such as cranes, engines and elevators. Usually, such inspectors have expert technical training and are required to make complete reports upon the machinery examined. They have power to shut down any machinery found defective or dangerous.

Wherever safety committees have been appointed the effect has been beneficial. It has been found that the workmen take a new interest in safety appliances; that they find them useful and make efforts to keep them in place. Whereas before they opposed safeguards and did little to keep them up, they suggest repairs and protection devices which would often escape an outside inspector.

Furthermore, experience has shown that these inspections have a moral value, in that they serve to stimulate those who have the care of machinery to greater caution and more careful operation. The

knowledge that defects once found will be reported once a week until repaired, keeps men on their mettle and causes them to see that repairs are promptly made.

As a result of recommendations made by inspectors and safety committees in the steel corporation, stairways have been built to all overhead steam valves and connections, so that such valves and connections may be quickly reached and safely worked upon. All walks along which it is necessary to travel for the inspection or repair of steam pipes have been provided with handrails, and every stairway and walk has been specially lighted. Ladders for reaching pipes or connections of any kind have been entirely abandoned. Danger from exploding gauge glasses has been eliminated by using a guard made of sheet metal which can be turned in front of the glass when anyone is working about it, or at other times swung back so as not to shut off the view of the register.

"Non-return valves" have been placed in all boilers and steam pipes, and so fitted as to close automatically in case of a break of any kind, thus bringing the system under control without the risk of closing the valves by hand.

In one plant of the Steel Corporation an inspector checking up accidents found that injuries frequently happened to men engaged in repairing boilers, through wrong valves being turned and steam admitted to the boilers. Examination showed him that these occurrences resulted from mistakes in identifying a particular valve which was often one of a great number in a long row, all exactly alike. To guard against such mistakes thereafter he caused these valves to be numbered, and red warning signs marked, "Danger: Do not Remove," to be hung on them when anyone was in a particular boiler. Whenever practicable, he made it the duty of the men doing the work to place these warning signs.

Many mills now have engines equipped with an attachment to stop them in case the governor breaks or becomes ineffective. Others have all their large engines equipped with automatic stop valves with speed limit attachments. These are intended to shut the engines down automatically when they exceed a certain safe speed. In one mill of the Steel Corporation there are push buttons in various prominent places, by which any engine can be instantly shut down. Each of these buttons is marked with a blue light which is never allowed to go out. If a man is caught in the machinery or a breakdown occurs, one of these buttons can be pushed and the machinery instantly stopped. Nearly 100 of these stops have been installed in this particular mill.

These buttons operate by electricity, and, to insure that they are always in order, they are used each day to start the engines. Furthermore, it is required that each button be pushed once a week with a man at the engine throttle to see that it works properly. In this same mill "Butterfly" valves (valves which close instantly by pulling a lever) have been installed as an additional protection. Chains or wire ropes are carried from the valve lever to convenient points so that the engines can be stopped from almost any part of the mill. Similar appliances have been adopted in this and other mills to stop electric motors, which are also operated by electric buttons placed at prominent points in the mill, and always accessible. Ropes, too, are often extended from the machinery operated by such motors to switches which can be pulled in emergency and the machinery immediately stopped. In one mill it is reported that a workman's hand had been caught in a roller, and that, on his crying out, several fellow operators pulled the rope together, and so quickly that the switch was torn from the wall, and the motor instantly reversed, with the result that only the tips of the man's fingers were caught, whereas, without the rope his whole hand would probably have been mangled.

In the mills of the American Steel and Wire Company, inspectors discovered some years ago that many of the most serious accidents occurred in the operation of cranes. They made a number of recommendations which were immediately put into effect. Later, an order was issued from the management that all specifications for new cranes should provide for all known safeguards. Among others, there were specified:

A foot walk on the side of the crane with a toe board along the edge.

Covering for all exposed gears.

Limit switches to prevent loads being lifted too high and breaking away from the drum of the crane.

A safety switch on the upper part of the bridge, by which a workman could prevent anyone starting the crane from the cab while he was at work.

For safety couplings, breaks and bumpers.

A gong by which the operator could warn anyone underneath of the approach of the crane.

And, finally, a brush or prong to move along in front of the crane wheels and push aside a hand or a foot resting on the rail of the runway before it could be caught or crushed by the wheels.

It is said that the first day a crane was fitted with the prong attachment, a workman, who was working with one leg across the crane track, was thrown aside and his leg saved from being crushed by the wheels. On another occasion a lineman who was supporting himself by placing one arm around the track was shoved away by the prong, and, though he fell 10 feet to the floor, was saved from serious injury. Without the prong his arm would have been cut off near the elbow. Other precautions which have been taken as the result of reports of safety inspectors and committees are these:

Projecting set screws have been entirely eliminated.

Screws on lathes and other machinery have been covered or boxed in.

Cans have been provided with light spouts, 10 to 12 feet long, for oiling machinery, in order that the oilers may not be compelled to go into dangerous places.

Rails have been furnished for all walks along lines of shafting.

Handrails have been provided for all scaffolds for painters and riggers.

A painter's chair, with a safety belt, has been adopted, so that if the man using it were to fall out of his seat, the belt would hold him.

Counter-weights have been boxed in so that they cannot fall on anyone in case the attached rope or chain breaks.

Covers have been made for emery wheels, so that if the wheels break the pieces cannot fly off and do damage.

When specifications are sent from the mills of the Steel Corporation for new machinery or for building new appliances, they are checked up to see that the latest safety provisions are included. In most instances the contracts which accompany the specifications contain this provision:

"Safeguarding of gears, planers, couplings, collars, set screws, etc., will be covered as fully as possible in the drawings which are furnished. But it is understood that these things shall be subject to the approval of our inspectors, who shall have free access at all times to the machinery while in process of construction and erection."

Other corporations cause to be printed on the stationery of their purchasing departments this motto:

"Provisions for safeguarding workmen should be brought to our attention, as we will consider them in selecting new machinery and equipment."

Often in big enterprises an effort is made to impress upon the workmen the necessity for using care. Instructions are printed on their pay envelopes that they must be careful of themselves and of their fellows. Similar instructions are also frequently stamped on time sheets and requests for material. Some of these instructions are:

"Always be careful and take no risks. You are responsible for the safety of others as well as yourself. Carelessness as to the safety of yourself or others will be sufficient cause for dismissal."

Another result of inspection has been the more frequent placing of warning signs around dangerous machinery. For instance, in many mills of the Steel Corporation notices are posted at ladders or runways leading to cranes, instructing workmen to notify the crane operator before doing any work on the crane; over valves, switches and control levers, to guard against their being started while men are working where they may be injured; over elevators to show when they are in operation and when they are not; and over electric switch boards (often in 5 or 6 languages) to show the voltage and whether the current is on or off.

The steps taken by the corporations I have referred to suggest what can be done along similar lines in other industries. Some system of inspection can be established, even in the smallest plant, and where workmen are employed in any numbers safety committees can be organized with good results. Even the most limited inspection will prove profitable. It will bring inquiry and investigation, and wherever either is found, there also will be found reform and a striving for better things.

Address of the President (Mr. William H. Bradley) of the American Gas Institute, Delivered on the Occasion of Its Fifth Meeting, New York, October 19-21, 1910.

It is with great pleasure, at the opening of this, the Fifth Annual Meeting of the American Gas Institute, that I extend to you all a most hearty welcome to the Empire City of the Empire State. It is especially pleasing to note the full attendance, and that we have with us so many members who have journeyed far from distant cities to take part in, and assist in the work of our organization. The usual presidential address that is expected on these occasions will be necessarily brief, as the Technical Committee have prepared a programme of unusual length and variety that will require all the time at our disposal to complete. I shall, therefore, only touch upon such matters as appear to be important at this time, concerning the Institute and its work, and to one or two subjects of general interest to our members, not attempting to discuss matters of published record so readily available to all in the columns of the technical journals. It has been suggested that I discuss the present policy of the Institute, and outline a future policy. It is not within the province of the individual, except through the medium of the Directors, to indicate or say what shall be the future policy of the Institute; but it may not be amiss to consider for a few moments the general situation, after 4 years of life of the Institute, to see if we can gain any information, or if any conclusions can be drawn that have a bearing on present conditions as they may seem to exist; and, if improvement is desirable or possible in the tone or work of the Institute, how such improvement can be made. It is evident that one thought in the minds of those who proposed, advocated and finally accomplished the amalgamation or consolidation of the American, Western and Ohio Associations into the present American Gas Institute was, that "In Union There is Strength," and that one organization, under favorable conditions and loyally supported by all its members, could, and would, do better and more efficient work than could be expected from many small organizations, each working independently of the other; and, again, as many of us were members of several (more or less) of these smaller bodies whose meetings were held at different times and in different localities, that much time would be saved by attending one annual meeting as against several; also, that the amount of money required to be expended by the members for annual dues and travelling expenses would be reduced to the minimum, the logical deduction being that few, if indeed any more, similar organizations would be formed. That this was correct in theory is beyond dispute, but it does not seem to have fully worked out in practice. Many new State and District Associations have since been formed and others are contemplated, so that there are now many more than at the time of the formation of the Institute. In addition to these, are also the Illuminating Engineering Society and the National Commercial Gas Association, both comparatively new organizations. It is an undeniable fact that the work of these two latter societies runs quite in parallel lines to the work of the Institute. This was recognized last year in Detroit, and a resolution was passed at that meeting, having, for its purpose, some form of amalgamation with the latter organization. That became impossible at this time, because of the decision of the National Commercial Association, that it would not be to its advantage to make any arrangement of the kind at present. It is, however, possible and even probable that the question may be brought up again during the coming year. Having in mind this entire situation, the subject of company membership was brought up at a meeting of the Directory, held in this city, the summer of 1910, when it was discussed both formally and informally, with the result that the President was directed to appoint a committee to consider and formulate a scheme of company membership to be reported back to the Directors, who would decide whether in their judgment they should recommend its adoption by the Institute. This action was taken too late to enable the committee to report, except perhaps to report progress at this session, and while not attempting to anticipate the report, it will probably provide, in substance, that the membership of the Institute is to be composed, partially at least, of delegates from, and appointed by the gas companies; that the formation of State and District Societies is to be encouraged, and that periodically, reports or bulletins of such of the proceedings of these societies as are of general interest, are to be forwarded through a committee of the Institute to each individual member of these several organizations.

This mere outline is given that you may have the subject in mind and give some thought to it in advance of a possible decision of the Directors that such a change is desirable, and that the question possesses sufficient merit or importance to warrant its presentation to the Institute for action.

The success of the Institute, as now constituted, depends not alone on the efficiency and work of its officers and committees, but also on the cordial support and assistance given them by the individual membership. If we believe that we fill the measure of our responsibility to ourselves, to the companies we represent, or to the Institute, by simply paying our annual dues, attending the annual meetings, and return to our respective homes, giving no further thought to the Institute and its work until the occurrence of the next annual meeting, then there is grave danger that the control of the Institute and its affairs will pass into the hands of the few, or working members, instead of remaining in the hands of the many (as it should) for the benefit of all concerned.

The papers that are to be presented at this meeting I have alluded to as being many and varied in character, and I may also say that there is but one that can be called a voluntary contribution; and, further, that the great majority of them are from members connected with the larger companies. This fact has been freely commented on before and should be corrected. We have young men, managers and engineers of the smaller installations, who have both the ability and opportunity to prepare papers that would prove both valuable and instructive, and it is eminently desirable, for the benefit of the Institute and the entire membership, that they should come to the front and take active part in this work and also in the management of the Institute. They should not hesitate because of a feeling of youth and inexperience; quite as much, and perhaps more, consideration will be shown them by the Institute because of this fact. The older and more experienced members are fully aware that they are not yet the custodians of all the knowledge to be obtained in the gas industry, and are willing to gain more knowledge, even from the young members. It is neither necessary nor desirable that all papers should be severely technical—popular papers, if I may so term them, relating to methods of operation or construction; records and results of experiments carried on with a definite purpose; notes on new, or changes made in old, distribution systems; on the uses of gas, and papers on business methods, are but a few of the topics that would be always welcomed with the technical papers. Even records of failures are valuable (I assume there are but few of us who have not at times made failures), and while it is all-important that we should know what to do, it is equally important to know what not to do. Again, the managers or engineers of the smaller installations are able to observe and attend to matters of detail, so desirable in preparing papers, to an extent that is not possible with the managers or engineers of the larger installations, who must, of necessity, delegate much of the detail work to others.

A word as to the educational annex of the Institute. Few of us, except we who have been brought into intimate contact with it, have any conception of the amount of time and labor given, freely and without stint, by the Trustees in carrying on this work. We should endeavor to assist and encourage them in every way possible, perhaps by suggesting to the financial officers of our several companies that are not already subscribing that a subscription to the fund would be acceptable and useful; by looking over the gas makers and others employed in our plant, selecting those likely to become interested in the subject of a better education, suggesting the matter to them, and, if occasion presents itself, assisting them to solve the problems given out in the various classes, and reap our reward in the consciousness that we have done something to forward the Institute work, and, at the same time, increase the self-respect, the efficiency and value to our company, and to ourselves, of some of our co-workers. It is not to be inferred from the preceding remarks that it is in the mind of any of us that the Institute is not at present doing good work, or that it is retrograding in its work or influence, for the contrary is the case. It is progressing, but not, perhaps, to the extent that is desirable or possible, and I have been prompted to make these observations solely with the sincere wish and hope that the result may be the awakening of more of our members to a fuller appreciation of their duties and privileges in the Institute, and, in this way, to at least partially dispel the atmosphere of seeming indifference, and initiate an era of progress and interest that will result in placing the American Gas Institute where it rightfully belongs; in the front rank among the technical societies of the world.

One important question, perhaps the most important in its influence upon the entire industry, is the proposed change of the standard of value as applied to the manufacture and use of artificial gas—the adoption of a calorific or thermal standard of value to take the place of the present photometric or candle power standard. A calo-

rific standard has already been adopted in some States, and is being seriously considered in the State of New York as well as in others. It has also been adopted, to some extent, in some of the larger installations in Europe. The advocates of this change argue that, as gas is so largely used for obtaining heat and power and for lighting purposes with the incandescent mantle burner, the thermal value is of more importance to the consumer than is the illuminating value. If this is conceded, it logically follows that in every case where the thermal standard is adopted the illuminating standard should be eliminated. So far as information is obtainable on this subject, no definite or constant relation has yet been established as between candle power and thermal value; considerable variation may occur in either one without corresponding or even relative variation in the other. Any attempt, therefore, to enforce compliance with two standards of manufacture, in the present state of the art, would simply result in our being penalized for non-compliance with one, while entirely in compliance with the other. This in itself is a sufficient argument for a single standard.

For some time past the Institute has had committees on calorimetry. These committees have done much valuable work, and have, from time to time, made their reports. Up to the present, in accordance with their instructions, their work has been confined chiefly to the examination and comparison of the several types of calorimeters on the market, the comparative results to be obtained by the use of the different types, and in formulating rules for the proper method of installing calorimeters and conducting tests.

I believe that the time has now arrived for us to consider the propriety of enlarging the scope of these committees by giving them instructions to take further steps, until, by research and experiment, they are able to make such a report to the Institute, for the information of its members, as to what should be the logical standard of thermal value for the different gases manufactured in different localities, considered from the standpoint of a gas useful for the purposes required, as well as economy in manufacture. A report of this character, well considered and matured, and having the indorsement of the Institute, will have much weight with those who are investigating the subject with a view to making a change of standard, as coming from a body well qualified to give expert advice on the subject. The present committees are now in possession of much useful data and detail information on this subject, and they should be continued.

Another always interesting question is the one that is sometimes called "Government by Commission." Much has been written and said upon this subject, but a few remarks may not prove out of place. The idea was conceived some years ago, when the National Government placed laws on the statute books having for their object the regulation and supervision of corporations, especially those corporations classed as Public Utilities Corporations, in which class, among others, gas companies are included. The lead of the Federal Government was followed by the legislative bodies of the several States, with the result that many laws were enacted, more or less drastic in character, according to the temper of the legislative bodies at the time and the demands of so-called public opinion. Public Service Commissions were evolved from among these laws, and they are now exercising their functions in several States. In some localities, and under some laws, these functions are extended to a point dangerously near to control of operation. A public service commission *per se* is not necessarily harmful or objectionable to corporations. A commission whose members are broad-minded, experienced in business methods, and who will take the time to acquaint themselves with the business of the corporations before attempting to supervise or regulate them, who will recognize the fact that the interests of the corporations and the public are identical, that disputes or misunderstandings should be amicably settled, and that both have their rights, among them being the right of the corporation to exist and do business and earn a fair return on the capital invested. Such a commission will be beneficial to both corporations and the public. If, on the other hand, a commission be composed of those who are unaccustomed to handling large enterprises, men of narrow minds, or politicians appointed by reason of service rendered to party or person, whose whole conception of the duty of a commission is to make a reason for its existence and continuance, and who, therefore, promote strife as a means of gaining notoriety and consequent personal or political advantage, or both, then the result is distinctly bad, not only for the corporation, but also for the customer and the public. "Demand by public opinion" is the shibboleth always used by those interested in procuring legislation favorable to their own interests. If we look into the matter we find "public opinion," so called, is strictly and wholly a manufactured article, manufactured by politicians and others interested in furthering their own or their party schemes, which are ofttimes actually detrimental to public policy and the general welfare of the community. The general public, not having the requisite knowledge to enable them to form definite opinions, are always ready to accept measures that seem on their face advantageous to their interests. This being the case, why should we not endeavor to mould public opinion, and by this means counteract, as far as possible, the effects of false, misleading and garbled statements that are so freely used to our disadvantage. Such a method of procedure is entirely feasible, and can be accomplished by inaugurating a scheme of publicity of the details of our business to such an extent as will satisfy all reasonable people that we are dealing fairly and honestly with them; give out periodical statements or reports in any way or form best suited to reach the public, according to existing conditions in any given locality; in other words, take the public into our confidence, and by this means create public opinion that is favorable to our interests, in place of an antagonistic feeling, if it exists. An immediate change will not take place, but this course persisted in for a time will, without question, bring favorable results.

If a public service commission law is enacted and becomes operative in any State, then publicity of every detail of our business will be obligatory. Public opinion will be more in our favor if we do this voluntarily than if it is done under compulsion. It is fair to assume that a system of publicity, inaugurated and carried out in good faith with the public, will be of advantage to any company, by preventing, to a great extent, litigation with its attendant expense and trouble, and make investigations and the enactment of laws prejudicial to the best interests of our industry much less popular. Another step in the same direction is to insist that all employees of the company, who in any capacity come in personal contact with the public, shall be courteous and avoid giving offense or cause for complaint. Unpleasant relations that are entirely unnecessary between the company and its patrons are readily caused by a disagreeable manner and incivility on the part of clerks and other employees. This is not a matter to be overlooked—discourtesy on the part of the company's employees will easily nullify any efforts of its officers to bring about friendly relations with the public.

From information gathered from different sections, and from the columns of the technical periodicals devoted to the gas industry, we learn that a substantial and most satisfactory increase in the sale of our product has been general over the entire country, also, that there is every reason to believe that similar conditions will obtain in the future. Contracts are being made for the erection of new plants in many localities, and for alterations and extensions of existing plants. This is evidence of the healthy condition of our business, notwithstanding the attacks that have been made upon it in the past, and the further fact that the business of our neighbors who are engaged in generating and distributing the electric current is also rapidly, and to them, satisfactorily increasing.

In the early days of gas manufacture, gas was considered to be a luxury; later, when electricity came into the field, that was also a luxury. That time has passed—both are now necessities, indispensable to the comfort and welfare of our people. Each has its place, its work, and its use. Each will take and hold its place, and the use of each will be constantly on the increase. They will both become more necessary and more indispensable to the entire community as the years roll around. There can be no ground for fearing that either one will or can interfere with the other in its place, work or use, to any appreciable extent, for any appreciable length of time. The public require and demand more light, and more convenient methods of obtaining light than in former days. Gas is being more freely used, and its field of use extended in directions and to an extent never dreamed of in days that are easily within the memory of many of us. But we must not be content with this, and so cease our efforts to acquire new, and increase in our present, business over and beyond the natural increase. We must get in touch with our customers. If any are still using the old open flame burner, now practically discarded and obsolete, see that they are shown the advantage to them, in the use of the incandescent mantle burner; see that they are supplied with cooking and heating appliances of new and approved pattern and design, at a nominal rental, or nominal cost price, if purchased; see that all appliances are properly installed and adjusted, and that full instruction is given as to their care and use; advertise freely in the local papers, and a large volume of business now lying dormant will be brought into active life. No company is

too large or too small to inaugurate a business campaign in this direction—many companies are already in the field, and in every case with most satisfactory results. Most consumers are pleased with the attention shown them, and every pleased consumer helps, aids and assists by a certain amount of gratuitous advertising among friends and neighbors. Our electric friends have their own methods of gaining business. Their methods are not necessarily competitive, except in the one field of lighting. There we must endeavor, so far as possible, to hold our own through the greater volume of light obtained per unit by the use of the incandescent mantle, if it comes to competition.

Another advantage to be gained from a general use of gas for purposes other than lighting is, that the consumption is spread more uniformly over the 24 hours of the day. In some cases, where there is a considerable increase in the use of gas for cooking and heating, the daylight output is gaining rapidly, and approximates fairly well with the output during the hours when darkness prevails. This also has a beneficial effect on manufacturing and storage conditions.

The National Commercial Association are our active allies along these lines. It is their business to introduce appliances. It is our business to provide use for them. Much more could be said on this and kindred subjects, but I have already consumed more time than I allotted to myself, and will close with a short resumé of the work of the Institute for the past year.

The report of the Treasurer shows an improved financial condition, the treasury having a substantial surplus, with no outstanding liabilities of consequence. The report of the Secretary shows a net gain in membership of 16, making a total to date of 1,348 members. During the year, 87 new members were elected, and 71 were lost through resignation, death, and by being dropped from the roll, as 's found fully itemized in the report. The work of the several standing committees has been well and faithfully performed, so far as it was within their power to perform it; notably the Committee on Standardizing Cast Iron Pipe, which has been held over for several years. The Technical Committee have done an immense amount of work, as will be shown in the reports to follow and in the number and character of the papers obtained.

With reference to committee work, I would suggest, that in future, when committees are formed for special work or research, they be continued intact, so far as is possible, until the completion of their work. Much time is wasted by the appointment of new committees to take up unfinished work, or by change in the membership of existing committees, owing to the necessity of completely reviewing all previous work before attempting to make progress.

Another suggestion is, when mandatory resolutions are passed, directing the appointment of a committee, or delegate, for any purpose, that will involve the expenditure of an amount of money to carry out the purpose of the resolution, that, coupled with the resolution, some provision should be made, or authority given, by which an amount sufficient to defray the necessary expense can be had, in order to prevent embarrassing situations in the future.

In Memoriam.

The grim reaper, death, has made an unusual harvest from among our ranks, since our last meeting, exacting from us a toll of no less than 11 members; 9 of them being on the roll of active members; 1 associate; and 1 junior member, as follows:

Name.	Class.		Date of Death.
Moses Coombs	Active	Died,	March 13, 1909.
Thos. J. Hayward	"	"	October 23, 1909.
George M. Witherden	Associate	"	December —, 1909.
John Fred'k Klug	Junior	"	January 2, 1910.
W. B. Clements	Active	"	" 6, 1910.
A. T. Averill	"	"	April —, 1910.
Jas. B. McGowan	"	"	" 25, 1910.
Wm. Henry Smith	"	"	May 16, 1910.
O. F. Greim	"	"	June 6, 1910.
Thos. O. Horton	"	"	" 13, 1910.
W. A. Stadelman	"	"	July 6, 1910.

We are but rarely called upon to record in the brief space of 1 year the loss of so many of our associates. The loss to the Institute is great, but greater still is the loss to those of us who were privileged to know them intimately. Perhaps the one who had the largest circle of acquaintances among us was Mr. Thomas J. Hayward, whose death occurred just after the close of the Detroit meeting, last year. His was a distinct loss to the whole profession—of commanding presence, most charming personality, always genial and pleasant in his intercourse with us, always helpful and resourceful in business, never refusing to aid with advice and substantial assistance when appealed to, he will long be remembered by the many who were so fortunate as to be numbered among his intimate acquaintances.

Gas Plant Economies.

[Prepared for the 18th Meeting, Pacific Coast Gas Association, by Mr. Sherwood Grover, Oakland, Cal.]

To do absolute justice to the above subject one would have to make a review of practically all the proceedings of the various gas associations, engineering and chemical societies up-to-date, for the gas business, as it is, involves all of the "A, B, C's and fundamental laws of both mechanical engineering and chemistry. Although it is not the intention of this paper to take the question up in such detail, it is practically impossible to prepare even a brief article on such a broad subject without being guilty of repeating subject matter which has already been published. The writer, therefore, hereby makes due apology to any and all who recognize herein some child of their own individual brain, parading in a different suit of clothes, or mayhap even nude. No claim is made for originality and effort will be made merely to treat the subject in a general way. Any original thought if such there be, will speak for itself.

A gas plant is essentially a chemical manufacturing establishment, as much as a powder works or paint factory; but it differs from them, or any other manufacturing establishment, in one important feature, *i. e.*, in the distribution of the finished product. A gas plant relies on the engineer to handle the product until the time it is delivered to the consumer on the consumer's premises, while other manufacturing plants turn their finished product over to a teamster or a railroad.

From the foregoing fact it also follows that a gas plant is a method of investing capital by which dividends are earned on bonds and stock, and, therefore, after a plant is completed in every detail, ready to deliver gas to the consumer, we may, just as a matter of comparison, regard it as a kind of grinding mill, into the hopper of which we pour the money to buy the raw products and the labor necessary for the fabrication of the finished article, and from the bottom of which we take the money which we get from the consumers as the price of our finished product, and the factor which determines the relation between that which we put in at the top and take out at the bottom is the economy of the plant. The economy of a plant can best be divided into two branches: The economy of installation or construction; the economy of operation.

As the construction is naturally the beginning of a gas plant, let us first consider, in a general way, a few of the essential economies of installation.

After a territory has been surveyed with a view of installing a gas plant, and the advisability of such installation has been definitely determined, the first economy is the most advantageous location of the gas works. The earliest elementary books on the gas business will tell you to locate the works at the lowest point in the territory to be supplied, at the same time having due regard for the most advantageous transportation facilities for your raw material, and although the development of high pressure distribution has, to a certain extent, nullified the advantage obtained in distributing from the lower level to the higher, we know that high pressure is limited in its field, and, therefore, this fundamental economy remains unchanged.

In the construction, the first and foremost economy which can be applied is that of absolute safety. This particularly applies to foundation work, and where there is any doubt at all as to the kind of bottom which is to be built upon, sufficient work should be done in the way of testing to determine its nature; and then, in our particular case here on the Pacific Coast, we should add another little factor of safety to cover possible earthquakes. This can best be taken care of in most instances of masonry work by a little extra steel re-inforcement.

The most important economy in the construction of a gas plant, assuming that the design is as near ideal as possible, is in the selection of machinery, and it is needless to say that only the best and most economical should be chosen. All of the latest improved labor saving devices, as well as those for improving efficiencies of moving machinery, should be installed, and, when the engineer lays out the steam generating and distributing system, bear in mind all that is best practice in power plant design, that dry steam is very desirable in a gas works, that a steam separator belongs on a gas generator as

well as on a high-speed engine. These facts are obvious, and when an engineer has the opportunity to build a complete new plant to suit a given condition, there is no excuse, at this stage and development of the gas business, for not building on lines of greatest economy. Unfortunately this is not the condition which engineers and superintendents are generally facing in the West. We are developing and have developed, to a remarkable degree of perfection, a new process, at the same time endeavoring to keep pace with a growth and consequent demand for our product, which I believe can be called unparalleled in the history of the gas business. There may be isolated cases of rapid development, but in our case it is general throughout the territory, and due to natural growth, not to any special campaign of advertising or education on the part of the gas company. The tables submitted are quoted as two examples of this growth in places which widely differ in size. They are the extremes in size of the plants coming under the writer's observation, and others could be quoted ranging between the two.

TOTAL SALES PER ANNUM.

Year.	Plant No. 1.	Plant No 2.
1900	227,035,600	.....
1901	267,662,600	.....
1902	306,827,600	2,829,700
1903	406,999,600	5,054,000
1904	490,914,700	7,872,300
1905	563,005,600	10,411,100
1906	880,622,800	11,498,600
1907	1,260,852,700	15,074,500
1908	1,394,254,200	17,420,200
1909	1,438,115,280	19,586,300
1910 including August	.....	15,295,800

Oil gas is practically general, and almost all of our plants as they stand to-day have passed through the stages of being coal gas plants, combination coal and water gas plants, water and oil gas plants, and, finally, we are adding to this list lampblack gas, or water gas made from the lampblack by-product of our oil gas process. This lampblack gas has now reached the stage of its development where a lampblack gas machine can be designed for a given oil gas plant to use the surplus lampblack entirely up, thus making a perfect balance. This is very thoroughly explained in the paper read by Mr. E. C. Jones before the American Gas Institute last October.

With plants which are the result of the above mentioned development, it is obvious that there may be many existent faults of design which, by a little study and care, can be remedied. The relative positions of the generators, boilers, lampblack separators and moving machinery should be carefully considered with the following points in view: Where lampblack is used for boiler fuel the separators must be, of course, located with a view of economy in handling. In a small plant, where hand labor is used entirely for lampblack, it is almost impossible to locate the separators too close to the boilers, while in a large plant, where mechanical handling is the rule, the matter of storage must be considered and location made, so as to not only supply boilers economically but also lampblack gas generators as well. Between the generators and separators the main thing to consider is a short, direct, lampblack drain of ample size, avoiding as much as possible sharp turns which tend to bank up the lampblack, requiring labor to overcome.

That the generators (where the greatest amount of steam is consumed) and the moving machinery should be so located, with respect to the boilers, as to insure shortest possible steam line, is, of course, obvious. There are, however, a number of minor uses of steam in our plants which, if not carefully watched, are sources of small loss individually, but in the aggregate are considerable; *i. e.*, steam used in scrubbers, foul mains, relief holder drips, etc. All leads for such purposes should start from the main steam line with a controlling valve so that they contain live steam only when in use, and these controlling valves should be so placed or equipped with extension handles that a man does not have to climb a ladder to operate them. It would seem unnecessary to emphasize the necessity of properly covering all steam drums, piping, etc., with non-conducting material, but it is a matter which is too often slighted, especially in the little side extensions of steam piping which are made from time to time. This may be a relic of the time when the disposal of lampblack was a problem and there was a tendency to overlook minor steam wastes on this account, but now, with the production of lampblack practically under control, these minor losses must be guarded against. Such losses consist in the transfer of heat from the steam to the air, and such transfer is directly proportional to the difference in temperature between them, hence, other things being equal, the higher the temperature of the steam the greater the loss. The insulation of pipe lines should not be confined to those carrying live steam alone, but should also be carried out on exhaust pipe, feed-water heaters and piping, oil heaters and oil pipe from heater to generator. It might be well to note, in connection with oil heaters, that where exhaust steam is used their design should be such as to avoid back pressure, otherwise it may be that the advantage obtained by using exhaust steam is more than balanced by the effect of the back pressure on the moving machinery. A well insulated, live-steam oil heater has many points to commend it, not the least of which is the fact that it will maintain constant temperature of the oil under any prolonged or varying pull. This is one feature in our gas works which varies from plants wherein water gas is made. We must heat nearly three times as much oil per 1,000 feet of gas made, and that of a kind more difficult to handle.

The matter of scrubber and relief holder connections is one of special importance respecting oil gas making. The process, as developed to-day, differs from water gas in the speed of generation per unit of actual generating time, and has a decided peak moment of generation during this time of actual generation. Therefore, to take advantage of this peak and prolong its duration are to our advantage, for by so doing the output and efficiency of the generator are increased.

The most important factor to consider in obtaining this result is the resistance offered by the foul main, the scrubber and the relief holder connections. These should be of generous proportion, avoidiug sharp turns as much as possible, and where necessary they should be provided with crosses or handhole elbows, equipped with quick opening doors, giving an opening the full size of the main, and also affording a gas tight fit when closed. This permits thorough cleaning in the shortest possible time. Another little feature peculiar to oil gas is the fact that the crude gas holds in suspension a certain quantity of microscopic lampblack that any amount of ordinary scrubbing fails to throw down. It does deposit in the oxide, however, and affects the life of the material as well as retarding, to a certain extent, its efficiency. The installation of a washer on the outlet of the relief holder, of a type known as ammonia-washers, of which there are a number of slightly varying designs on the market, has been found to overcome this fault. The feature of these washers is to force the gas to pass through water in a finely divided state and precipitate the lampblack.

Leaving the manufacturing end of the business to take up that of distribution, we find that a great many plants are a combination of low and high pressure, the latter being an auxiliary of the former system. In such installations there is one important tendency to be guarded against; *i. e.*, the low pressure system is inclined to throw most of the load on the high pressure, which, if not watched, will eventually result in an installation that is top heavy, with the high pressure doing most of the work. This condition is partly a result of growth and extensions to the high pressure mains without corresponding development of the low pressure, and also due to the fact that the regulators feeding from the high into the low pressure system are set to a given pressure and, unless adjusted daily, maintain their pressure throughout the 24 hours and will assume the night load, if they are set for a pressure equal to that given by the storage holder, which is generally the case. If set for a pressure above that of the storage holder, still more work will be thrown on the high pressure system, the amount of this extra work varying with different conditions; the greater the distance between storage holder and regulators and the smaller the size of low pressure mains, the less the amount of work thrown on the high pressure system.

The writer firmly believes that the field of high pressure distribution has been definitely determined and its application limited—if not now, it will be in the very near future—to suburban districts and such other widely scattered territory where a low pressure system would be prohibitive in cost, where growth is not rapid and a higher price can be charged for gas, and not used in closely built up towns or cities, except to reach outlying districts as above.

Where high pressure feeders are in use, to feed outlying territory contingent to cities, and also are used to boost up weak places along the line, the low pressure system should be extended to relieve the high pressure feeders as the intervening territory fills up, and by so doing keep the installation of compressors as close as possible, consistent with the development of a given community.

Let us take, for example, a city or town which has outgrown the low pressure system, a town which is alive and will keep on growing and will need a new main feeder or feeders. Figure out the cost of low pressure mains, then of equivalent high pressure mains, say 20

pounds pressure, feeding in at every intersection, which it must do to be the exact equivalent of the low pressure. This means manhole and regulator at each. Add to this the cost of compression plant and you will find there is not a great margin in favor of the high pressure except that the pressure can be raised and capacity thereby increased. Then we must consider the fact that high pressure requires constant care and attention, not only for the compressors but the regulators as well. Looking at it from the point of view of the bond or stockholder, I would rather have my money invested in cast iron pipe, assuming its life to be 50 years, whose maintenance is practically nil, than in an installation of reciprocating machinery, such as compressors in conjunction with wrought iron or steel pipe. The life of the pipe depends upon the reliability of the man who does the coating. The life of a compressor at highest efficiency is not over 15 years, and as they must be overhauled at least once a year, they have a high maintenance cost. Carelessness on the part of the operator may badly damage or completely wreck a machine. In these arguments favoring the ultimate economy of the low pressure system the writer is not ignorant of the fact that high pressure has bridged over many financial difficulties for gas companies, but it is a toll bridge and not built of sufficiently durable material to stand heavy traffic.

There is in this connection a matter to be considered which will be an important element favoring low pressure in the future development of the gas business. The present tendency of political development in our States and cities is toward regulation of public service corporations. Those who have watched the working of the Public Service Commission of New York have no doubt observed the trend of events. There is little doubt that similar commissions will eventually exist in all the States. By the regulation of such a commission a corporation is allowed to earn interest on or issue securities covering actual investment only. Such rules will work against the system with cheaper first cost but higher operating expense.

Economy of Operation.—This whole subject might be summed up in the following expression: "Know what your plant is doing at all times, and as well know the condition of your plant while doing it." This is a rather inclusive statement and means first of all that a works should have a full equipment of apparatus for recording and making observations, beginning with the photometer and gas analysis set, and including all of ordinary indicating instruments, such as thermometers and U-gauges between scrubbers, at each side of exhauster, and other important points throughout the works, oil and steam nozzle gauges on generators, recording gauges in superintendent's office, connected to each generator, etc. The writer has never seen a gas works with too many such devices installed. These instruments are, however, of no use, unless properly cared for and kept in working order, any more than is a station meter which is not tested often enough to be kept accurate.

After considering the equipment as above, then there remain the many odd little leaks, small individually, but having in the total a marked effect on the economy of the plant. These are small leaks in steam lines, valve stems, or long runs of steam line to idle equipment with no main cut-out valve, leaky stuffing box glands on engines, compressors, pumps, etc. Quick opening doors on scrubber or yard connections which do close tight. Holder carriage rollers should be oiled and an inspection of holder cups made during the dry season to keep them filled and prevent blowing (this is a slight compensation to our Eastern brethren who have to prevent freezing in the winter time). Some plants shut down their boilers too often on account of poor water when a proper chemical treatment to suit the given condition, or even filtration where sand or grit is present, would effect an appreciable saving.

The fact is the possible economies in a gas works are as many and as varied as the parts that go into its making, and are limited only by the care and resourcefulness of the man in charge, which brings us to what is really the biggest and most important factor in the economy of a gas plant—the personal one.

General Policy Regarding Pipe Extensions.

[Prepared for the Eighteenth Meeting, Pacific Coast Gas Association, by Mr. C. A. Lukenbach, Los Angeles.]

At the sixteenth annual meeting the Secretary of this Association presented a notable paper on "Corporation Regulation," in which, after describing the attitude of the public press with reference to public service corporations, he makes use of the following language: "For all this pilloried condition the present corporations and their predecessors in interest have themselves so largely to blame, that a new method of treating the public must be created to restore them to the favor in which they were once held."

In studying this paper, and looking into the department in which I am particularly interested for the "original sins," which our Secretary calls "in many instances equivalent to the action of get-rich-quick concerns," I am involuntarily drawn to a consideration of the policy regarding pipe extensions and the effect it has on the public pulse and the capital of goodwill of the corporation.

The use of gas in the household is no longer a luxury; in fact, it has long since ceased to be so. Even the courts of this State have recognized the use of gas as such a necessity as comes within our civil code, which makes the salary of a wage earner attachable for its use. So generally recognized is this necessity that the home builder has long since reached the point where he is unwilling to enter upon the improvement of property, until he knows to an absolute certainty that, when he accepts the keys to a finished building, that building is reached with the pipes necessary to furnish those who occupy it with gas for any purpose desired. In a word, the person who is willing to live in a house which is not supplied with gas is the rare exception; and has he not the almost undeniable right, under reasonable conditions, of demanding the same?

When the framers of our State Constitution inserted that provision which gives an individual, or a company, the right to enter upon the streets of any incorporated city or town for the purpose of supplying the inhabitants thereof with gas, without specific franchise, but "Under the direction of the superintendent of streets, or other officer in control thereof, and under such general regulations as the municipality may prescribe for damages and indemnity for damages," they did so, not for the purpose of relieving the individual or corporation accepting its provisions of any burdens, but with a different object in view. It was sought to remove the possibility of oppressive monopoly in handling this and other necessities of life, and in accepting it the individual or corporation acquires not only its privileges and its benefits, but its obligations as well. That its object was reciprocal is clearly evidenced by the fact that it retained within the power of the municipality, within which this right or privilege was to be enjoyed, the right to establish and fix the rates to be charged for the service rendered. Whether this provision is a wise one, for either the best interests of the company or the consumers, owing to the political influences which surround our various municipal authorities, is questionable; but it is still a fact that the provision is in force and in its enforcement the voter, whether he be consumer or not, has an influence and a power. And this influence and this power he will continue to use as a leverage for securing those rights which he believes he should possess and which he is not able to freely obtain. One of these rights is the ability to secure liberal extension of mains and installation of services upon the application of would-be consumers. And should he not be able to do so, both for the best interest of the consumer and the company? Perhaps the difference of opinion arises from the viewpoint of liberality, which we all know is vastly influenced by whether we are the giver or the receiver. But there must be, and is, a common ground upon which both the company and the consumer can stand in their definition of liberality as applied to these extensions. It is not a difficult matter for a manager to determine the cost of a proposed gas extension, to estimate the probable consumption along the line of such extension, and to decide whether or not it will be a paying one from the date of its installation, and upon such decision approve or reject its construction. Such might, and would be, the cold-blooded proposition from the standpoint of obtaining "all the traffic will bear;" but it is the broad and wide policy necessary for the upbuilding of a strong, vigorous and healthy business upon which the investor can depend for good or even fair returns for a period of years? Or is it such a policy as will earn or entitle the company to expect the goodwill of the general public? In a fixed or settled community, where newspapers are published once a week, where the fact that John Jones has put a back porch on his house is a news item and where the building of a new house is an event and not an everyday occurrence, such it might be. But we are dealing with conditions as we find them on the Pacific Coast, where, even before the fires of a terrible calamity had been extinguished, the pluck, energy, courage and grit of the inhabitants had caused them to begin clearing away the *debris* and to commence the erection of a new city, more elaborate in conception and accomplishment, more beautiful in its architecture, and more secure in its construction, than that which the elements in a few short hours had swept away. We are dealing with conditions as we find them in communities where the orange groves or open fields of to-day are the settled residence sections and well built up communities of to-morrow, and such conditions exist in practically every portion of that territory covered by the membership of this Association. Why should the pioneers of coming communities be compelled to ask in vain for the

use of such necessities until the territory becomes highly remunerative, except it be upon the principle of obtaining "All the traffic will bear?" The acceptance of the privilege to enter upon the streets of the thickly populated portions of a city carries with it the obligation to extend the service, under reasonable conditions, to less thickly settled but rapidly and steadily growing sections as well, and no surer means of securing the goodwill and co-operation of the desirable public exists for the utility corporation than by adopting this policy. In some cases such a policy may work a hardship for the time being, but in almost every case the result will justify the means and eventuate in added benefits to the company.

It can hardly be questioned that the future security and stability of the capital invested in public utility companies depend to a large extent upon the goodwill of the public. That the public is fickle is not to be denied. Nor can it be denied that this fickleness operates in almost every case against the utility corporation, not for it. It is a condition which the corporation manager knows to exist, which he must expect to meet and which he must be prepared by wise policies to combat and overcome. What surer method is there of reaching the general public, of bringing a gas company to its favorable consideration and of securing a hold upon the people, than by such liberal extensions of main and installation of services? The writer believes there is none. As to the building upon that foundation, after it has once been laid, is a matter which is not within the province of this paper. There is, however, an element of this discussion which is of vast importance to the utility corporations, and one with which some companies will be compelled to reckon at a future day, and which, in the writer's opinion, is bound to cost more than is ever obtained. I refer to the matter of demanding or accepting bonuses for extensions of mains or installation of services. No public utility corporation should permit itself to be placed in the position of either accepting charity, or of demanding public contributions, toward the building of its plant or distributing system. An applicant for the service which we sell is either entitled to such service free, or he is not entitled to it at all. If he is entitled to it he should have it without the exaction of 1 penny of bonus, or other consideration. On the other hand, if under such a liberal and generous policy as has hereinbefore been referred to, he is not entitled to the extension, he should not be able to obtain it by a thinly veiled species of bribery.

The incorporators and officers of a gas company know full well that money, and lots of it, are necessary for the building of a works and distributing system to supply the community which it desires to enter, and it should be prepared to meet the demands which it has undertaken to supply and meet these demands upon such a basis as will permit the company to retain the respect of the public. The only basis upon which the collection of these contributions can stand is that might makes right. The commodity which we sell—gas—is the property of the company until it leaves the meter, and all charges are based, or should be based, upon a fair return upon the investment in a system extending to the outlet of the meter. Upon what basis, then, can the cost of building the lines to the meter be charged to the consumer? And in this State, where rates are fixed by the municipal authorities, does it not come dangerously near a violation of law, or at least evince such a contempt for not only the evident intent and purpose of the law, but the right of the consumer, as will eventually cause an uprising which will do a thousand-fold more damage than could possibly be offset by the aggregate amount of the bonuses collected. The time has gone by when the corporation, oblivious to common sentiment and unmindful of public opinion, can force an objectionable and unjust policy upon the people. The bonus-built company will contend that where such contributions are obtained they are made by tract owners to advance the value of their lots and the salability of their property, and that they are willingly made. It is true that added value is given to the real estate by the laying of gas mains, and it may be true that the real estate owner is seemingly willing and often offers to pay for the added value, but is it not equally true that the extension has added no more value to the property of Mr. A., who pays a bonus, than it has to the value of the property of Mr. B., who has made no contribution to the fund for the building of the system? And is it not equally true that the seemingly willing contributor to the extension of the system is willing because he must be? But is he a willing contributor when he casts his vote in favor of a low and often unjust rate, or is he influenced in his vote by his desire to even the score with the company for making him pay for what his neighbor has obtained free?

On what basis of effective argument, with what evidence of injured rights, can the company which has built its system, or any material part thereof, on bonuses, go before the public declaring that a given rate does not afford an ample return on the investment made? Is the company which accepts bonuses, gratuities and charities able to go before the court of public opinion, or the court of equity and justice, with "clean hands," and show that any rate is too low to afford fair returns on capital invested? Can the bonus built company, with justice to itself, ask the consumer to build its system, and then pay a rate based upon a return upon the capital which the consumer himself has donated? It appears to me that the time for such policies has gone by, and the manager who adopts such a policy stores up trouble, which, with the present temper of the voting public, is bound to react to the ultimate injury, not only of the company which he represents, but of all other companies engaged in similar business as well. Truly this is of the sins which have been called "Equivalent to the action of the get rich-quick concerns."

The defense that bonuses are paid willingly is too often a subterfuge, too often an attempt to conceal a determination not to extend mains unless a bonus is paid; in other and plainer words, a determination to build a system by public contributions and no other! Too often the company accepting bonuses permits would be consumers right at the doors of its system to go without this necessity until a bonus is paid, and often when such action is in direct violation of law. What defense of any kind, except that which is expressed in the words "The public be damned," can a company, operating within the State of California make, when it charges a bonus for an extension to supply a would-be consumer within 100 feet of its main. None, except that it takes advantage of the lack of legal knowledge upon the part of the average inhabitant. And yet it is done, and this violator of the law appeals to the majesty of the law and asks the assistance of the same law it has violated in effect to protect it in its rights. Will it do so? Can he reasonably expect it to do so? What security can you, or I, honestly expect from the enforcement of the law which we treat with contempt? An eye-for-an-eye, a tooth-for-a-tooth, is the dictum of the old Mosaic Law, and it is the law of the present-day business world. When we apply it to others, why should we not expect it to be applied to ourselves? It may be true that "goodwill cannot be created in favor of the corporations by the corporations' good deeds, because such deeds are misunderstood and misconstrued," but that is no reason why the corporation should wilfully carry on a policy which it knows is unjust and oppressive, and which is bound to neutralize the effect of any good deeds which are performed in its name. The time will never come when all of the public will treat corporations justly, nor will the time ever come when all the corporations will treat the public justly, but the time has come when both the corporations and the public must assist in finding a common ground upon which each can stand with confidence in the other. Corporations are just as necessary to the public welfare as the public patronage is to the corporations, and by urging the adoption of acceptable policies and the eradication of unwise and objectionable policies, each of us can do his share toward securing this highly desirable result.

Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, October 10, 1910.

A Success in Differential Prices.—Smoke Abatement at Glasgow.—Visitors from Germany.

The current number of the *Journal of Gas Lighting* contains an interesting contribution, from Mr. R. W. Edwards, Manager of the Aldershot District Gas and Water Company, under the attractive title of "How to Trade Successfully." Following the example of others situated within 30 or 40 miles of the metropolis, the Aldershot Company has extended its borders by amalgamation with neighboring concerns, until it covers what is probably the largest area of supply in the country, nearly 100,000 acres, or over 150 square miles. In the home district the price of gas is 2s. 6d. per 1,000 cubic feet, but the rates vary in the out districts according to distance from works, size of townsips and other circumstances. For the benefit of the district supplied, it is agreed that the price charged locally shall not exceed a stated advance on the home rate, and for the protection of the latter, who might otherwise urge that the price was kept up in the home district, to cover the results of less successful exploiting outside, a minimum difference between the home and outside rates is

agreed upon. Mr. Edwards, having various selling prices immediately under notice, is, therefore, in a unique position for ascertaining the effect of price on consumption, and some time since he observed that while in the home district there was a steady demand for stoves and cookers, gas was not extensively applied for heating and cooking in the higher rated districts. It was, therefore, decided to offer a rebate of 6d. per 1,000 cubic feet in the out districts on gas used as fuel. There are two methods previously used under similar circumstances. To ascertain the exact consumption, two sets of meters and supply pipes are required. And to avoid the inconvenience and expense incidental to this system, the rough-and-ready but by no means satisfactory plan of taking an average over a number of years, to get at what we may call the normal consumption, and allowing the rebate on any excess used above that quantity, was tried. The objection to this plan is that the consumer gets the discount on the increased consumption without reference to the purpose. Mr. Edwards found that the rotary meter was sufficiently reliable to answer his requirements and his plan, which has the merit of simplicity, is simply to introduce one or more of these small appliances at a convenient locality on the consumers' premises, without disturbing anything else. They are called rebate indicators, and the customer is entitled to a rebate of 6d. per 1,000 cubic feet on all gas indicated by them, the total consumption being ascertained by the ordinary meter as before. A rent of 6d. per quarter is charged in respect to each indicator, and the customer is required to enter into an agreement, which stipulates, amongst other things, that the allowance is consequent upon the payment of the quarterly accounts within one month of face date, and that the Company reserve the right to discontinue the agreement at a quarter's notice. Under certain limitations the agreement is extended to slot consumers. After 2 years' experience Mr. Edwards says the plan has proved satisfactory and capable of wide extension. A number of cases selected at random from the books show large increases of consumption, many over 50,000 cubic feet per consumer, and it is quite evident that this plan is worth consideration in connection either with ordinary or with slot consumers, wherever it may be desirable to increase the consumption per consumer. It would appear particularly applicable to the continental cities mentioned last month, where the consumption per consumer is small. A special feature about this communication from Mr. Edwards is that it is a record of facts, and, therefore, carries greater weight than a scheme worked out in theory only. Many of the papers previously brought forward on this interesting subject comprise little more than ingeniously presented arguments setting forth the personal views of the writer, but giving no practical experience.

On previous occasions I have remarked that the current prices of gas in our principal towns are already so low that differential rates are not called for, while in places where, on account of small business or other local circumstances the price of gas is necessarily high, a good consumption per consumer cannot be obtained without some inducement of this kind, and I am glad to see that the Aldershot experience is in full accord with these statements.

A large amount of interest has been excited in gas circles by a Smoke Abatement Exhibition held in Glasgow. The gas works at that city are the property of the local authorities, and it became known that opportunity was to be taken to make a full and high-class display of the capabilities of gas. The local Gas Managers' Associations, and every gas engineer who could find time and opportunity, have availed themselves of the chance of seeing the latest developments in gas appliances, and one and all pronounce the whole arrangement to be an unqualified success. The attendance of the public has been so large that endeavors have been made in the way of extending the time of opening. The Committee have secured a spacious, lofty and well ventilated building, the latter a most important point where a large number of cookers, gas fires, etc., are to be shown in operation. The Earls' Court Exhibition, the Manchester Exhibition, and others of similar character, have afforded useful examples of the lines on which a popular exhibition should be run, and it must not be forgotten that the object is not so much to interest and instruct gas managers as to catch the public and lead to the placing out of gas appliances. An exhibition may be a success from a technical point of view, but not otherwise, and it is now recognized that the show must be presented in elegant surroundings, with features that will attract the man in the street, and, more important still, his women folk. The Earls' Court Exhibition had the effect of impressing upon the public the cleanliness of gas. The smoke nuisance is always with us in our large towns and manufacturing districts, but it is generally recognized that the domestic chimney is the chief offender, and also that the gas cooker, the gas fire and the incandescent gas burner make no dust and no soot. The popular exhibition has also had the effect of practically disproving the strenuous endeavors of interested parties to create an entirely fallacious idea as to the poisonous or deleterious qualities of the products of combustion from coal gas, and it is now generally known that gas is purified coal, that the products of combustion are nothing but carbonic acid and water, and that there are no organic or other dangerous substances. Given the necessary ventilation that must be provided for obvious reasons, gas or no gas, the products of combustion can be safely ignored.

A special feature in connection with the exhibition was the first annual conference of the Smoke Abatement League of Great Britain. The proceedings were of such a practical, commonsense character (a marked difference from some previous efforts that have been put forth on the lines of smoke abatement) that more may be expected, and the League will probably do some useful work. One speaker remarked that the mere doing away with soot and black smoke was not sufficient. The combustion of coal might be so complete as to avoid soot, but there would still be the sulphur which was cast forth into the atmosphere, and when brought down by rain or fog in the form of sulphuric acid, exercised a deleterious action on many kinds of building stone, pictures, polished metal, etc. The use of gas in place of coal not only did away with soot but also with sulphur, seeing that practically the whole of the sulphur was absorbed in the purifying apparatus at the gas works. Some striking statistics as to the effect of fog on the public death rate were quoted, and reference was made to the serious loss caused to all classes of business men. It was mentioned that one authority (Bradford, York) have already obtained parliamentary powers for prevention of the smoke nuisance, and that the new regulations will come into effect on August 1st ensuing.

The event of the week, however, is the visit of about 80 members of the German Association of Gas and Water Engineers. This had been arranged to take place in June at the time of the Institution meeting, but was postponed on account of the lamented death of the late King. The visitors were received on their arrival last Sunday by the principal officers and Reception Committee of the Institution of Gas Engineers and have spent the subsequent days, and some part of the nights, in visits to works and social entertainments. On Monday they were the guests of the Gas Light and Coke Company, and visited the Beckton, Fullham and Kensal Green stations. Tuesday was devoted to visiting the East Greenwich station of the South Metropolitan Gas Company and the works of the Croydon Gas Company. Thursday morning found the party taking breakfast in Edinburgh, and the day was devoted to a visit to the Granton gas works and the Forth bridge. They proceeded to Glasgow and arrived in time to attend a banquet at the invitation of the Gas Committee of the Glasgow Corporation. It will be remembered that Mr. Alexander Wilson, Engineer to the Glasgow Gas Committee, is the President of the Institution of Gas Engineers for the current year. Friday was devoted to the visits to Tradeston and Provan gas works, and a return to London filled up the latter part of the day. On Saturday the party attended luncheon at the Japan-British Exhibition at the invitation of the Institution of Gas Engineers. The whole of the necessary arrangements were made by a special Reception Committee. By using motor cars the journeys from one gas works to another were effected expeditiously, while at the same time opportunity was afforded for the visitors to see the principal streets and buildings. The whole programme was carried out successfully, and the weather throughout the week was favorable. The visitors had been provided in advance with a handbook, giving the chief details of the works to be visited. At Beckton the party inspected the extensive chemical works for heating the liquid by-products, which are the largest of their kind in the world. In this connection one is reminded of the beautiful stand of products from these works that was an interesting feature in the Earls' Court Exhibition. They then boarded a special tram and were conveyed to the principal parts of the gas works. The need for assistance of this kind, in order to see Beckton, is evident when we are told that there are 45 miles of railway inside the boundary lines. At Kensal Green the chief attraction was a set of Woodall-Duckham vertical retorts, comprising ten beds with four 25-foot retorts in each. The result of a week's working test on Aldwarke nut coal was an average of 13,187 cubic feet of 15.35-candle gas per ton of coal, and 11.4 cwt. dry coke and breeze available for sale, after providing the requirements of the furnaces. An interesting feature in connection with the visit to East Greenwich was that it took place on the second anniversary of the death of the late Sir George Livesey. On the following day the President of the German Association visited the grave at Nunhead and

laid a wreath of laurel on it. At East Greenwich the visitors also had the opportunity of seeing a large tar distillation plant. At the luncheon given to the visitors, the Chairman, Mr. Chas. Carpenter, delivered the usual congratulatory speeches in German, and the response to the toast of the German Association was made in English. In Scotland the visitors also had an opportunity of seeing some vertical retorts. The visit has excited a great deal of interest, but coming so late in the year had the effect of preventing many provincial engineers from personally meeting the party.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

971,858. Apparatus for Manufacturing Gas. B. Loomis, Hartford, Conn., assignor to Loomis Utilization Company.
971,859. Gas Furnace. W. A. Lynch, Los Angeles, Cal.
971,938. Gas Heating Attachment for Pipes of Heating Systems. W. Thomas, Vancouver, British Columbia, Canada.
972,056. Natural Gas Burner. C. E. Bunner, Grafton, W. Va.
972,156. Port Plate for Rotary Meters. E. C. Brown, New York City, assignor to Rotary Meter Company.
972,172. Feeding Mechanism for Gas Producers. V. E. Edwards and J. R. George, Worcester, Mass., assignors to Morgan Construction Company, same place.
972,278. Gas Flash Light. J. Spring, Chicago, Ills.
972,486. Continuous Make Gas Apparatus. E. E. Wickersham, Watsonville, Cal.
972,500. Means for Lighting and Extinguishing a System of Gas Lamps at prearranged times from a given station. J. Brazier and H. Watson, Melbourne, Victoria, Australia, assignor of one-third to R. R. Grundy, Brunswick, Australia.
972,538. Maximum Demand Meter. V. Karapatoff, Ithaca, N. Y.
972,619. Lighter for Burners of Gas Stove Ovens. J. G. Harvey, Chicago, Ills.
972,697. Gas Burner. C. Hoff, Cincinnati, O., assignor of one-half to F. Hofman, same place.
972,775. Gas Burner and Grate. W. C. McGeorge, Oakland, Cal., assignor of one-half to G. D. Cooper, same place.
972,785. Guide Frame for Gasholders. H. J. Stoffels, Norwood, O., assignor to The Stacey Manufacturing Company, Elmwood, O.
972,864. Method of Producing Gas. E. G. Jewett, Bellingham, Wash.
972,882. Burner for Gas Stoves. R. M. Lovell, Baltimore, Md., assignor of one-half to H. Kolb, same place.
972,938. Self Lighting Gas Burner. J. R. Stanton and F. D'Arsi, New York City, and W. F. Munzer, West Hoboken, N. J.
972,975. Automatic Safety Gas Valve. H. L. Young, St. Joseph, Mo.
973,030. Automatic Gas Igniter and Safety Device. E. E. Gerald, Baltimore, Md.
973,040. Gas Burner. R. C. Hawk, Pittsburgh, Pa.
973,120. Gas Scrubber. E. F. Lloyd, Detroit, Mich.
973,161. Machine for Calcining Mantles. J. Bonnet, Paris, and J. L. Muller, Sannois, France.
973,164. Process of Obtaining Ammonium Salts from Gas. K. Burkheiser, Aix-la-Chapelle, Germany.
973,396. Gas Regulator. A. E. Westburg, Jamestown, N. Y.

Items of Interest
FROM VARIOUS LOCALITIES.

THE proprietors of the Albany (N. Y.) Southern Railroad have been enabled to see their way clear towards making considerable of a concession in the selling rates for gas in their Rennselaer district. Heretofore the rates were, per 1,000: Gross, $1.75; net, $1.60. Hereafter, gross, $1.50; net, $1.35.

DEAR JOURNAL: Not long ago the San Jose (Cal.) gas folks issued a ruling that the minimum charge for gas in any month should not be less than $1 per 1,000 cubic feet. This course in due time brought out a rapid fire of complaints; in fact, some of the volleys were so well aimed as to stagger certain members of the City Council. The result was a conference between the Council and the Company, and a further result was the planning of the following ordinance, which seems to be satisfactory to Council, consumer and Company: "That a minimum rate of 50 cents per meter be charged in residences where there is more than one meter; that a charge of 50 cents be made for installing meters instead of $1, and that a deposit of $5 be charged only to those who are not taxpayers; that the Gas Company pay its license for the last 4 months; that said Company pay 2 per cent. of its gross earnings for the last year, this sum being required in the terms of the franchise to be paid into the City Treasury and as yet being unpaid."—SALTRANO!

THE capital stock of the Freeport (Ills.) Gas Light and Coke Company has been increased to $300,000—former capitalization $100,000. The par value has also been increased from $10 to $100 per share.

THE following letter from Mr. W. P. Plummer, Purchasing Agent for the Societie Anonyme du Gaz de Rio Janeiro, and whose address is 25 Broad street, New York—telephone, 2,560, Broad—explains itself:

To the Editors AMERICAN GAS LIGHT JOURNAL: In connection with the enlargement of our gas plant in the city of Rio de Janeiro, Brazil, we are establishing a commercial division for the sale and distribution of gas materials and appliances. We anticipate that there will be a large demand for product of this character, as theretofore our plant has not been of sufficient capacity to push this end of the business. The population of Rio de Janeiro is about 800,000, and as our Company operates exclusively the gas business of the city, the field warrants our best efforts. Consequently we are very much interested in receiving from you in duplicate a full and complete set of catalogues, price lists and discounts, showing all and every discount you allow; also any circulars and advertising matter which you publish. We particularly desire that no compromise as to agencies shall be made, for we wish to try out all first-class appliances before filling our standards. In due course, as soon as the information is received by our Rio office, they will no doubt authorize us to place sample trial orders; and, therefore, it is quite urgent that we send the information forward promptly.

MANUFACTURERS who avail themselves of this invitation may rest assured that the goods best suited to the Company's needs will be the ones chosen. That is, a fair trial will alone be test. Further, as these trials will be conducted likely by Mr. Louis J. Carder, who is Chief Engineer for the Company, and as Mr. Carder is an American (he resigned the position of Superintendent of Distribution to the Coney Island, Brooklyn Borough, Gas Company, to go to Rio with Mr. A. B. Slater, who was then the Rio Company's Chief Engineer, in the spring of 1906) there is every certainty that goods made in this country will get at least impartial recognition. No hesitancy on any score should be manifested in practically replying to the Purchasing Agent's invitation.

THE ordinance under which the firm of F. E. Myers & Brother has been granted the right to manufacture and supply artificial gas in the village of Ashland, O., provides: That the life tenure is 25 years; that it may charge a rate not to exceed $1.25 per 1,000—if natural gas be distributed the charge may not exceed 25 cents per 1,000; and that 10 cents per month per meter set may be charged, or the consumer may, at his own expense purchase and install a meter, providing the same "shall be of a standard and approved pattern of gas meter."

WE are informed that orders have been given to start construction on the new plant that is to furnish gas to the residents of Hudson, Wis. Some weeks ago, the residents of Hudson, at a special election, granted the St. Croix Gas Company a franchise, by a large majority. That Company is controlled by the Consumers Power Company, with H. M. Byllesby & Co., of Chicago, Managers and Engineers. A high pressure gas main, 7 miles long, will be laid from Stillwater, Minn., across the St. Croix river and south to Hudson, where a complete local distributing system and gasholder will be put in. Gas will be supplied from the modern works of the Consumers Power Company at Stillwater. Hudson is a city of about 3,500 population, and has not heretofore had gas service. It is planned to have the Hudson system ready for the convenience of consumers next spring.

AT the meeting of the proprietors of the Bath (N. Y.) Electric and Gas Light Company, held recently in Philadelphia, Pa., Mr. John

Graham was succeeded in the Presidency by Mr. B. L. Van Schaick, of the Eastern Light and Fuel Company, of Philadelphia. The other officers who continue to serve are: Vice-President and General Manager, A. B. Beadle; Secretary and Treasurer, W. H. Lawton. The above, and John Graham and R. W. King, constitute the Board of Directors. The Company has arranged for the construction of an up-to-date water gas plant, the new system to include a storage holder. Lengthy additions will also be made to the distributing mains and to the electric lines as well.

THE Fremont (Neb.) Gas and Electric Light Company, which is now controlled by the Doherty syndicate, will expend several thousand dollars in the reconstruction of the named Company's plant, in both divisions thereof. The gas works renovation means the placing of an additional storage holder and a complete generating equipment. Manager R. E. Burger has the matter in charge, subject always to the general oversight of Mr. Milan R. Bump.

AT a meeting of the shareholders in the Brooklyn (N. Y.) Union Gas Company, Mr. A. F. Stanniford, formerly Assistant Treasurer, was chosen Second Vice President, and Mr. F. B. Jourdan was elected Secretary to fill the vacancy consequent upon the death of Mr. W. H. Rossiter. Mr. F. R. Wogan was promoted to the post of Auditor, Mr. J. H. Benedict was made Assistant Treasurer, and Mr. T. Y. Payne was elected Second Assistant Treasurer.

THE annual reorganization meeting of the Board of Directors, Troy (N. Y.) Gas Company, resulted in the naming of the following: President, Edward Murphy, Jr.; Vice-President, Francis J. Molloy; Secretary and Treasurer, Walter C. Coleman.

THE construction of the gas plant for Dallastown, Pa., is underway, and promotor Hess declares that gas will be manufactured and distributed there prior to Christmas day.

THE proprietors of the Portland (Ore.) Gas and Coke Company have authorized the extension of the main system to and through Laurelhurst to Rose City Park. These lines will also provide for a goodly named acquirement of consumers between terminals.

MR. WILLIS MORRIS and associates have incorporated the Delphos (O.) Gas, Heat and Light Company, with a capital of $50,000. Mr. Morris is a resident of Delphos.

THE plant of the Rochester (N. Y.) Gas Engine Company, at Lexington and Driving Park avenues, was completely destroyed by fire the night of Saturday the 15th inst. Mention is made of it now in the main to show how careless the engineers of railways are while passing through large centers of population—the noted conflagration having been started by sparks from the locomotive of a passing train.

AT the first meeting of the Massachusetts Lighting Companies, to formally put its own representatives on the executive management of its newly acquired property, the Gloucester Gas Light Company, the gentlemen named were: President, Alfred Clarke; Vice-President, Arthur E. Childs; Treasurer, Addis M. Whitney; Clerk, Geo. F. Howland; Auditor, Cyrus N. Burnell. It gives us great pleasure to add that the likelihood (it is almost a certainty) is Mr. John A. Coffin will be retained as Manager of the works.

MR. E. E. CORCORAN, formerly Chief Clerk in the Peoria (Ills.) Gas and Electric Company, and who has been Acting Secretary since the resignation of Secretary W. H. Brown in August last, has been elected Secretary by unanimous vote of the Directors in special meeting assembled.

THAT the Laclede Gas Light Company, of St. Louis, Mo., has done excellently and well under its present management would seem borne out through a scanning of the following figures:

	1910.	Increase.
Gross earnings	$3,274,766	$323,759
Operating expenses	1,748,194	91,137
Net income	$1,526,572	$232,622
Depreciation	150,202	65,420
Net earnings	$1,376,370	$167,202
Interest and preferred dividends	839,001	5,182

THE Nashville (Tenn.) Gas and Fuel Company, through its President, Mr. C. H. Geist, has given formal notice of its acceptance of the terms of the gas franchise, approved by the Mayor on October 14th, under which the Geist combination will succeed to the properties of the old Nashville Gas Company, provided the voters indorse the franchise at the election to be held the 8th prox. That the latter will be in favor is a hundred-to-nothing chance.

MR. THOS. R. WATERS, writing from Milwaukee, Wis., under date of the 20th inst., says: "I fail to note any particular mention by you of the decision of the Wisconsin State Commission in the instance of the trial (if I may so write) of the Kaukauna Gas and Light Company in the matter of its inadequate service to the residents of the named place—this concern is really an electric lighting one, and the 'sentence' is to my mind one fully borne out by the facts. The Commission notes that the power plant in question was not only poorly constructed, but is being poorly maintained, and that much of the plant is absolutely obsolete. The like criticisms apply to the distributing division, which division it is ordered must be reconstructed forthwith. The opinion thus ends: 'Sufficient time will be granted within which such improvement work may be done, if prosecuted with reasonable diligence. It is, however, imperative that there be no further delay in the matter and no postponement of the time of taking effect of the order herein will be granted.'"

THE Citizens Gas and Electric Company, of Omaha, Neb., in payment of the royalty tax on its output as imposed by the officials of that blooming borough, handed over to City Treasurer True a check for $4,728.46. This amount represents 3 per cent. of the Company's gross receipts for electric power furnished and 2 per cent, of the gross receipts for all gas consumed, for the year ended the 1st inst. Last year the sum turned over was $600 less than that now reported.

THE sale in foreclosure of the plant and franchise of the Berwick (Pa.) Consolidated Gas Company, by order of the U. S. Circuit Court, takes place to-day. No bid of less than $30,000 will be considered.

"W. B. M.," sends the following from Knoxville, Tenn., under date of the 24th inst.: "The Knoxville Gas Company, the only corporation in this city that pays a franchise tax, recently sent its check to the City Recorder (Mr. W. P. Chandler) for the sum of $4,420.39, which represents the tax on its gross earnings for the twelvemonth ended the 15th inst. When the Company sought a renewal of its franchise a few years ago a movement was instituted that had for its object the imposing of a tax on its gross receipts, and this scheme was subsequently passed, during the incumbency of Mr. J. T. M'Tier as Mayor. Besides paying this tax the Company pays realty and personal taxes. It may be interesting to repeat the sums annually paid since the tax went into effect:

Year.	Sum Paid.
1904	$2,215.33
1905	2,501.23
1906	2,789.24
1907	3,298.00
1908	3,489.98
1909	4,067.95
1910	4,420.39

THE Mayor of Newton, Ia., has named the 15th prox. as the day for holding a special election for the purpose of determining whether or not the city shall be bonded in the sum of $40,000, the money from the sale of such bonds to be expended in the construction of a gas plant to be operated on municipal account.

SOME time ago Judge A. C. Smart, of Ottawa, Kas., in the case of the authorities of Paola, Kas., against the Paola and Osawatomie Light and Fuel Company, decided that the provision of the franchise, ordering that the Company pay into the city treasury the sum of 5 per cent. on its gross receipts, was valid. The case is likely to go to the Supreme Court.

THE Great Falls Gas Light Company, of Somersworth, N. H., has changed hands. It is now owned by the Morse syndicate, which concern is also the owner of the Rochester (N. H.) Gas Company. As a sequence the Davis & Farnam Company, of Waltham, Mass., have been awarded a contract for the rehabilitation of the plant.

THE proprietors of the Atlantic Highlands (N. J.) Gas Company have determined to lay connecting mains from the plant uuder the river, across from Locust Park, and along and under the famous Remson Road.

THE vote on the three propositions submitted to the shareholders in special election by the Washington Gas Light Company (these have been given at length in other issues) resulted in the unanimous affirmation of all.

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

THOS. J. CUNNINGHAM,
ELBERT P. CALLENDER,
EDITORS.

CHARLES H. WADELTON,
MANAGER.

PUBLISHED ON EACH MONDAY OF THE YEAR AT
No. 42 Pine Street, New York.
Telephone, 2996 John.

TERMS:

SUBSCRIPTION—Three Dollars per annum, in advance, Single copies, 10 cents.

The JOURNAL is the official organ of the NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

AGENTS:

New York—American News Company, 39 and 41 Chambers street.
Germany—Lemcke & Buechner, of New York.
England—Aug. Siegle, 30 Lime street, London.

MONDAY, OCTOBER 31, 1910.

The Market for Gas Securities.

The Directors of the Consolidated Gas Company, at a meeting held yesterday (Thursday) voted to increase the dividend for the quarter in the sum of ¼ per cent. This, of course, means that, until another move is made in the premises, the annual return on the shares will amount to 6 instead of 4 per cent. It is distinctly said, though, that this does not mean the ending of the Company's contention that it cannot earn 6 per cent. on its capital stock, were the same properly computed. Of course, it is needless to say, however, that the new rate will not further the contention. The action was well discounted, for the quotations came in this morning at 137½ to 137¼—virtually those of a week ago. Other developments are likely to crop out at any time; and our statement of months ago that the shares are intrinsically worth 250, at the very least, is here repeated.

Brooklyn Union is steady, and a like remark applies to Peoples, of Chicago. Lacledes are about as before, and Massachusetts gas, as to the common, is 86¼ to 87. The preferred is 7½ points higher.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

OCTOBER 31.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	137¼	137⅛
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	3,600,000	100	155	165
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101½
New York & Richmond Gas				
Co. (Staten Island)	1,500,000	100	35	50
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	104	107
Con. 5's, due 1945, J. & J.	3,500,000	—	97	101
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	—	75
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	137½	139
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	180	—
Out-of-Town Companies.				
Bay State	50,000,000	50	⅝	¾
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	90	96
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	73	73½
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,660,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	92	93
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90½	91
Preferred	3,026,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	106½	—
Mortgages, 6's	3,600,000	—	89	100
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	3,500,000	—	102	105
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100½
Detroit Gas Co., 5's	381,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	108	108½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	102	104
Lacledе Gas Co., St. Louis.	10,000,000	100	104¼	105
Preferred	2,500,006	100	91	102
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	350,000	1,000	106	108¾
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	86¼	87
Preferred	25,000,000	100	94	95
Montreal Gas Co., Canada	2,000,000	100	218	218½
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	108½	108⅝
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104½	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.—				
1st Mtg. 5's	751,000	1,000	100	102
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgages, 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	90	95
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	100	104
Washington (D. C.) Gas Co.	1,800,000	200	382½	385
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	361	—

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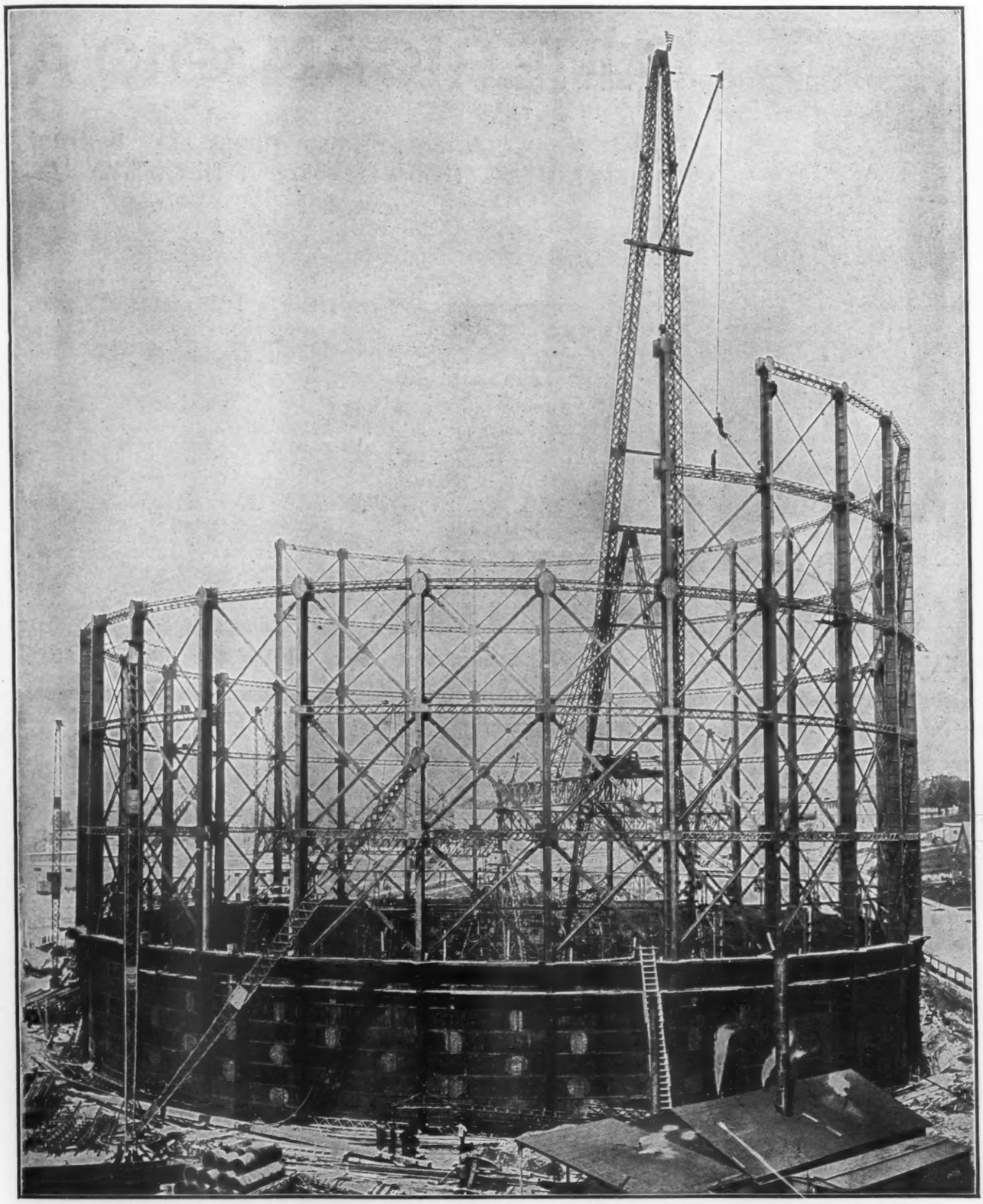

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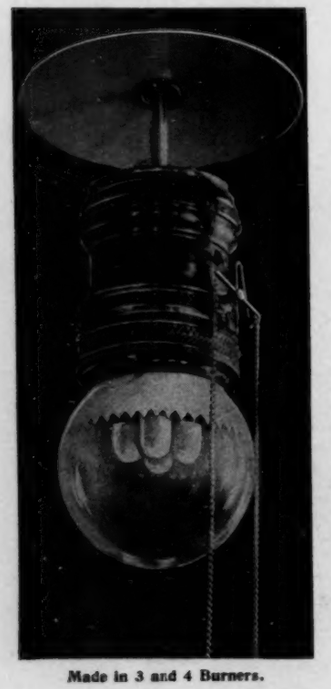

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KALAMAZOO, MICH. BOSTON, MASS. MANCHESTER, ENGLAND.

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, Oct. 19-21, 1910. New York City. Officers: President, Wm. H. Bradley, N. Y., City Secretary, A. B. Beadle, 29 West 39th street, N. Y. City.

Canadian Gas Association.—Annual meeting, June, 1911. ———. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, Nov., 1910. New York City. Officers: President, C. R. Huntley, Buffalo, N, Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Gulld of Gas Managers of New England.—Annual meeting, December. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, A. K. Quinn; Newport, R. I.; Secretary, Walter G. Africa, Manchester, N. H.

Illinois Gas Association.—Annual meeting, time, March, Chicago, Ills. Officers: President, A. S. Harrington, Chicago, Ill.; Secretary-Treasurer, C. B. Strohn, Elgin, Ill.

Illuminating Engineering Society.—Annual meeting, Baltimore, Md., Oct. 24, 25, 1911. Meetings of Sections, monthly. President, W. H. Gartley, Phila ,Pa.; Secretary, Preston S Millar, 29 W. 39th street, N. Y. City. Sections: New York: Secretary, Albert J. Marshall, 227 Fulton street. New England, Secretary, L. D. Gibbs 39 Boylston street, Boston, Mass. Philadelphia, Secretary, F. N. Morton, Broad and Arch streets Chicago, Secretary, T. R. Beebe, 157 Michigan avenue,

Indiana Gas Association.—Annual meeting, January 19, 1911, Fort Wayne, Ind. Officers President, Carl H. Graf, Indianapolis; Vice-President, S. E. Mulholland; Secretary-Treasurer, Philmer Eves, Indianapolis Gas Company, Indianapolis, Ind.

Iowa District Gas Association.—Annual meeting, time, June, 1911, ———. Officers: President, Austin Burt, Waterloo, Ia.; Secretary and Treasurer, G. I Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ——— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, Sept. 1911; Battle Creek. Officers: President, A. P. Ewing, Detroit, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April 13, 14 and 15, 1911; St. Louis, Mo. Officers: President, R. J. Irvine; Secretary and Treasurer, W. J. Cunningham, Springfield, Mo.

National Commercial Gas Association.—Annual meeting, December 5-13, 1910: Boston. Officers: President, E. N. Wrightington, Boston; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, May 16, 17 and 18, 1911; Pittsburgh, Pa. Officers: President, John M. Garard, Columbus, O, Secretary, T. C. Jones, Delaware, O. Editor Wrinkle Department, F. W. Stone, Ashtabula, O.

New England Gas Association.—Annual meeting, third Wednesday in February; Boston. Officers: President, W. H. Snow, Holyoke, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

Oklahoma Public Utilities Association.—Annual meeting, May 9, 10 and 11, 1911. Officers: President, E. C. Reynolds; Secretary, Galen Crow, Guthrie, Okla.

Pacific Coast Gas Association.—Annual meeting, Sept. 20, 21 and 22, 1911, Oakland, Cal. Officers: President, W. B. Cline, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 925 Franklin street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April, 1911, Reading, Pa. Officers President, J. H. Keppelman, Reading, Pa.; Secretary-Treasurer, William H. Merritt Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, December, 1910; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 1123 Broadway, New York.

Southern Gas Association.—Annual meeting, April 19-21, 1911, Montgomery, Ala Officers President, H. W. Frund, Salisbury, N. C.; Secretary-Treasurer, Jas. Ferrier, Rome, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. May, 1911, ——— Tex. Officers: President, W. B. Tuttle, San Antonio, Tex.; Secretary, H. B. Head, Stephensville, Tex.

Wisconsin Gas Association.—Annual meeting. May ———, 1911, Milwaukee, Wis Officers: President, W. H. Winslow, Superior, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.

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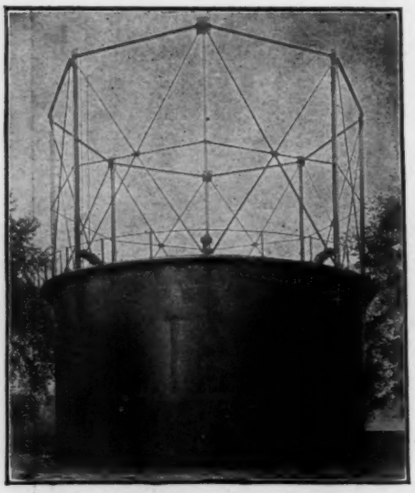

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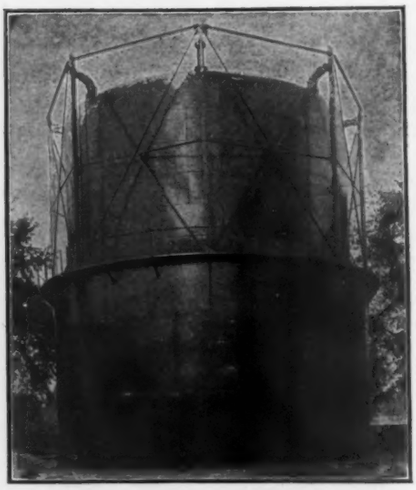

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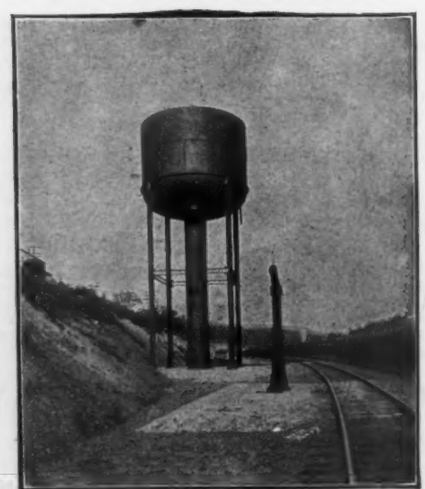

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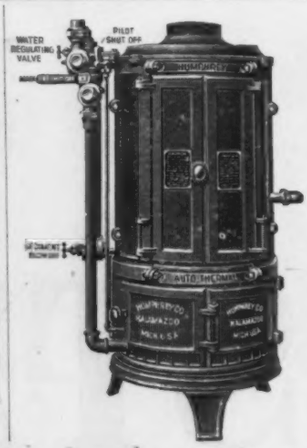

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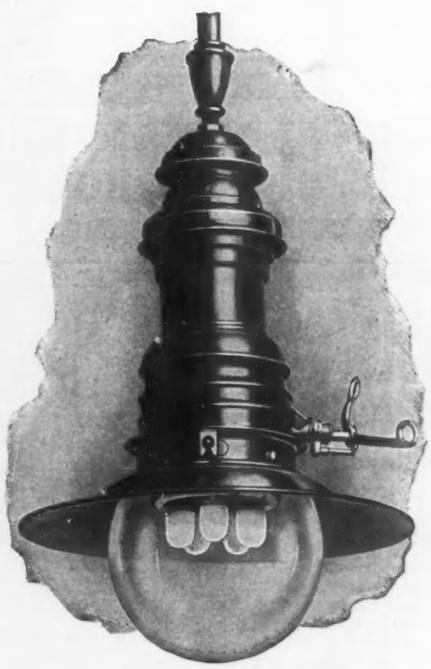

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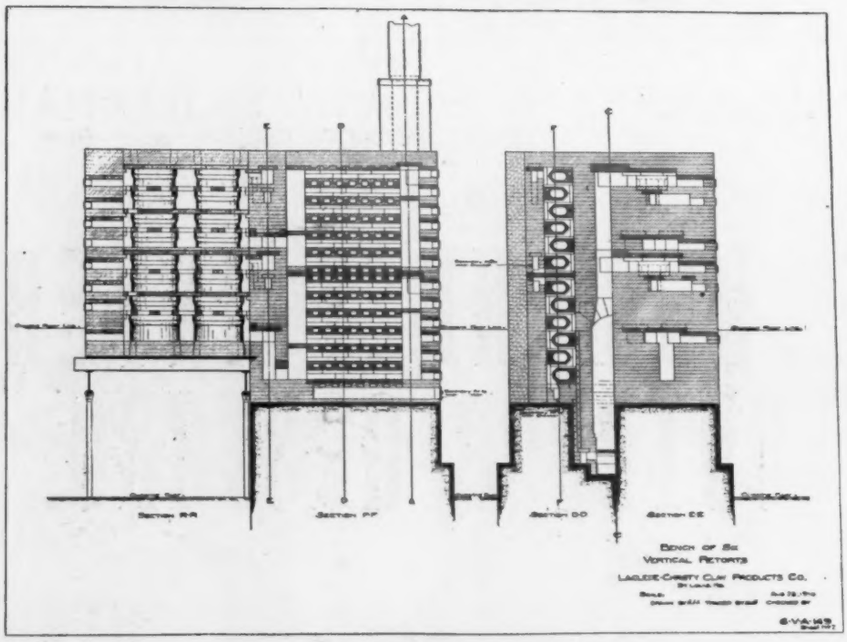

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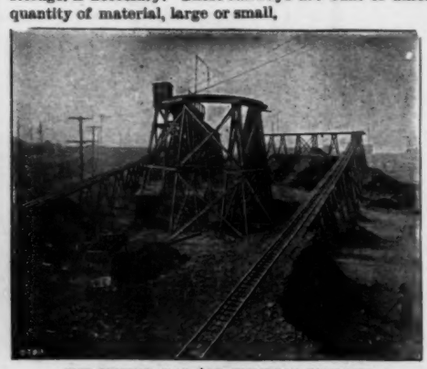

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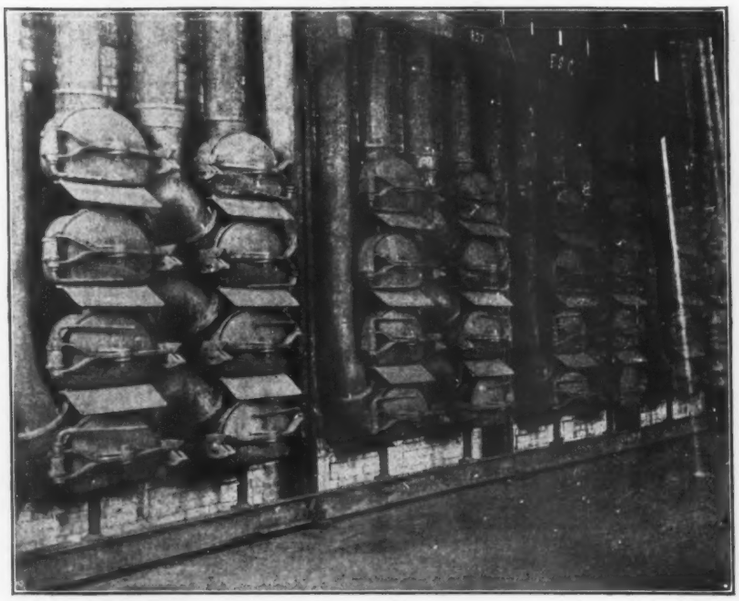

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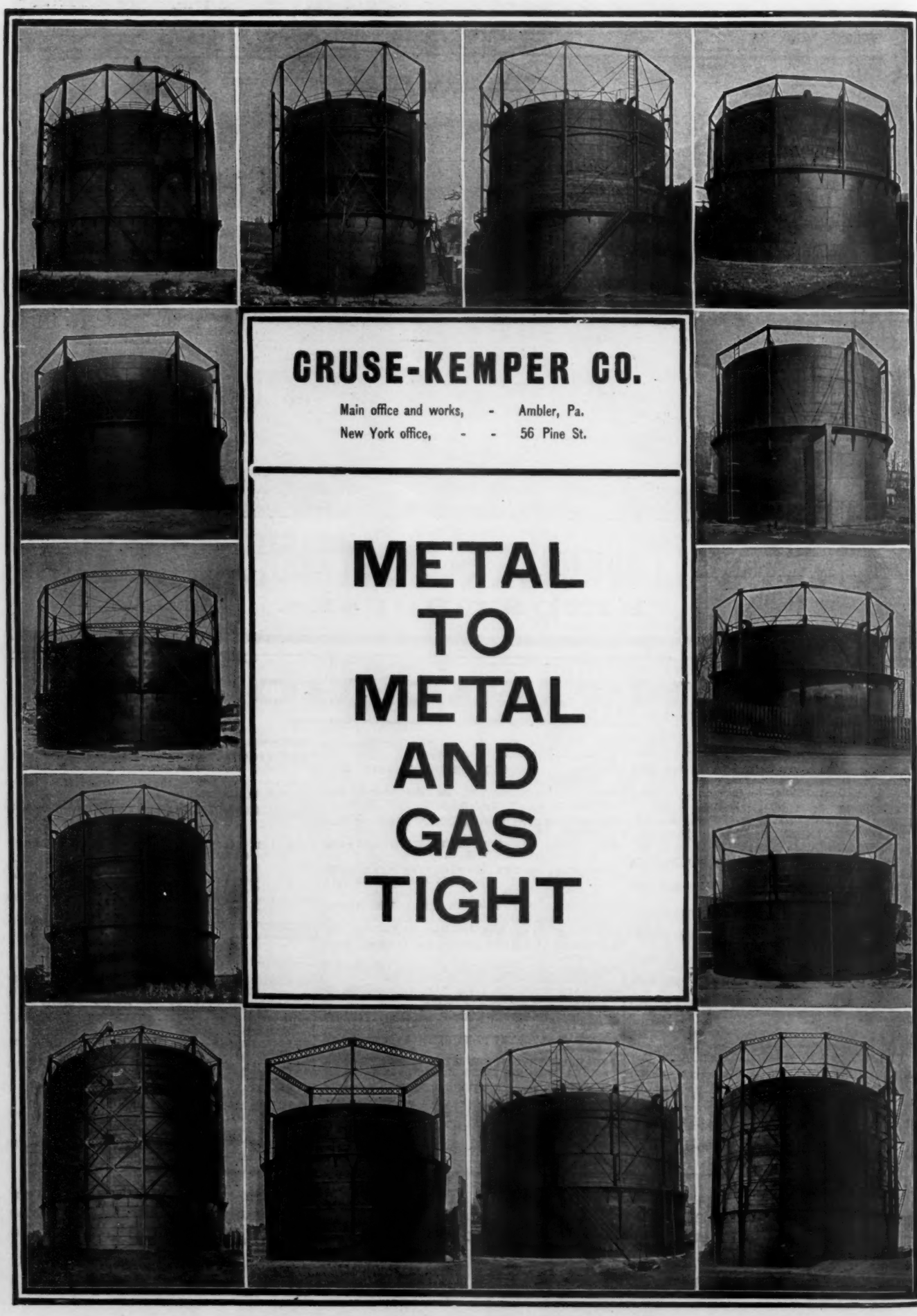
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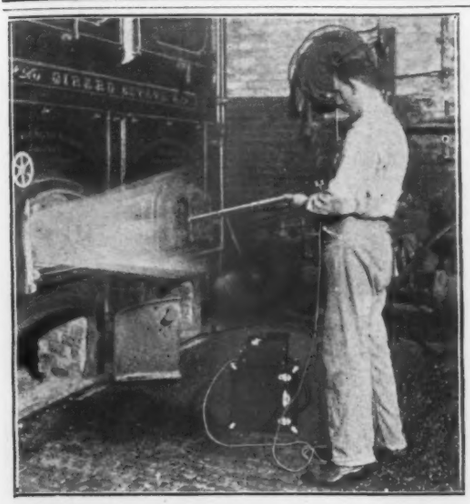

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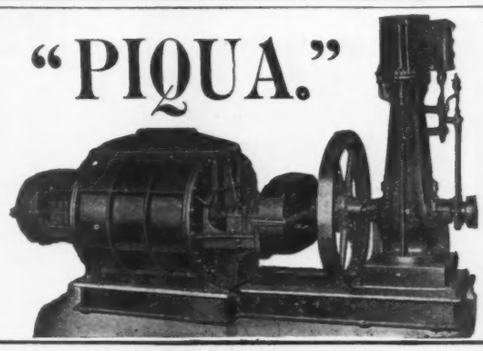

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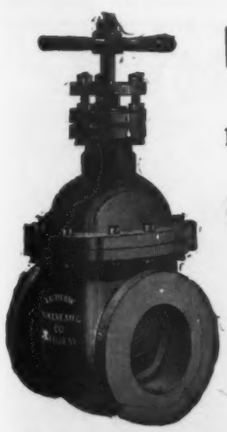

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GAS ENGINEERS AND CONTRACTORS.

PUBLIC LIGHTING TABLES FOR NOVEMBER, 1910.

[COMMUNICATED BY THE AMERICAN METER COMPANY.]

Day of Week.	Table No. 1. FOLLOWING THE MOON. Date.	Light.	Extinguish.	Day of Week.	Table No. 2. NEW YORK CITY. ALL NIGHT LIGHTING. Date.	Complete Lighting in 1 Hour. From Time Given.	Complete Extinguishing in 50 Minutes. From Time Given.
		P.M.				P.M.	A.M.
Tue.	1	5.30 N.M.	5.30 A.M.	Tue.	1	4.37	5.17
Wed.	2	5.30	5.30	Wed.	2	4.37	5.17
Thu.	3	5.30	5.30	Thu.	3	4.37	5.17
Fri.	4	5.30	5.30	Fri.	4	4.37	5 17
Sat.	5	5.30	5.30	Sat.	5	4.27	5.27
Sun.	6	6.50	5.40	Sun.	6	4.27	5.27
Mon.	7	7.40	5.40	Mon.	7	4.27	5.27
Tue.	8	8.50	5.40	Tue.	8	4.27	5.27
Wed.	9	9.50 F.Q.	5.40	Wed.	9	4.27	5.27
Thu.	10	11.00 A.M.	5.40	Thu	10	4.27	5.27
Fri.	11	12.10	5.40	Fri.	11	4.27	5.27
Sat.	12	1.20	5.40	Sat.	12	4.17	5.32
Sun.	13	2.30	5.40	Sun.	13	4.17	5.32
Mon.	14	3.50	5.40	Mon.	14	4.17	5.32
Tue.	15	No L.	No L.	Tue.	15	4.17	5.32
Wed.	16	No L. F.M.	No L.	Wed.	16	4.17	5.32
Thu.	17	No L.	No L.	Thu.	17	4.17	5.32
Fri.	18	5.10 P.M.	7.00 P.M.	Fri.	18	4.17	5.32
Sat.	19	5.10	8.00	Sat.	19	4.12	5.42
Sun.	20	5.10	9.10	Sun.	20	4.12	5.42
Mon.	21	5.10	10.20	Mon.	21	4.12	5.42
Tue.	22	5.10	11.30	Tue.	22	4.12	5.42
Wed.	23	5.10 L.Q.	12.40 A.M.	Wed.	23	4.12	5.42
Thu.	24	5.10	1.50	Thu.	24	4.12	5.42
Fri.	25	5.10	2.50	Fri.	25	4.12	5.42
Sat.	26	5.10	3.50	Sat.	26	4.07	5.52
Sun.	27	5.10	4.50	Sun.	27	4.07	5.52
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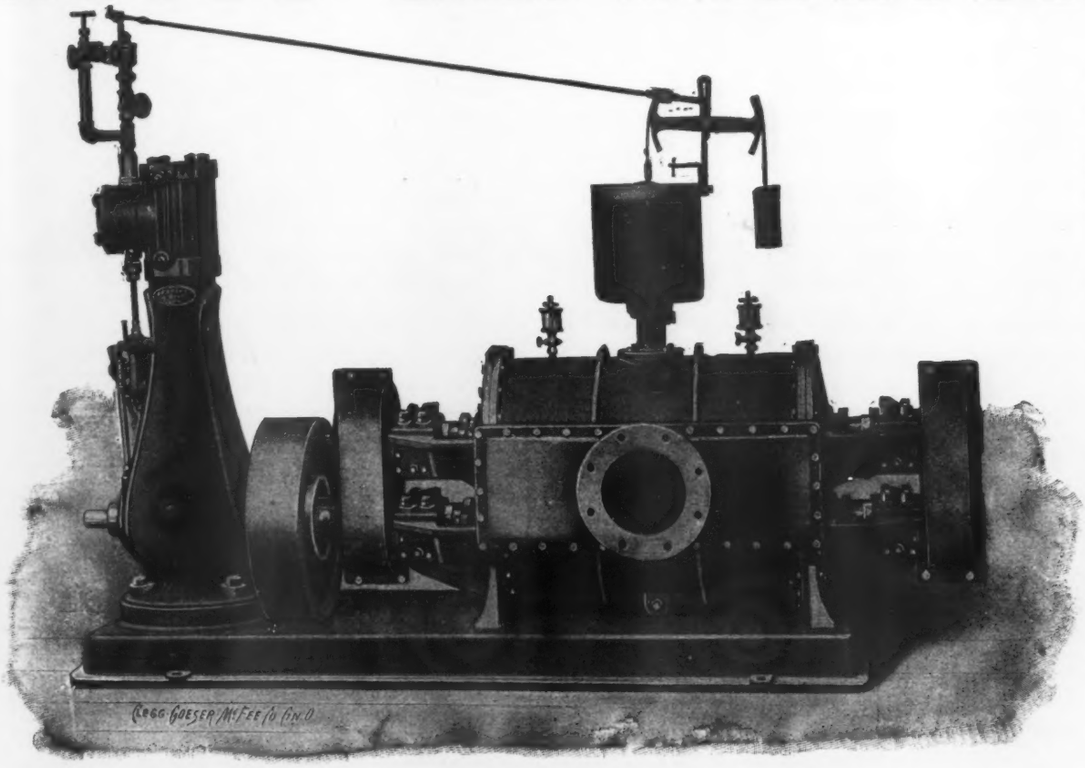

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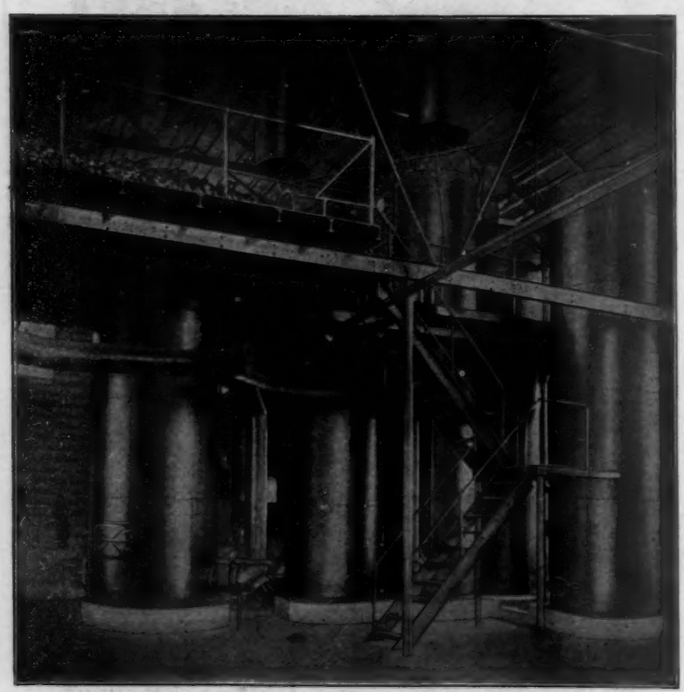

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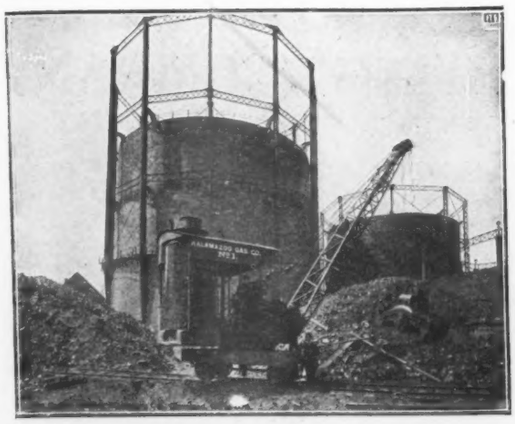

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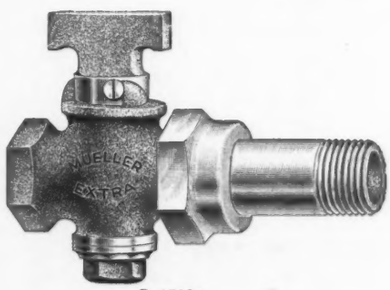

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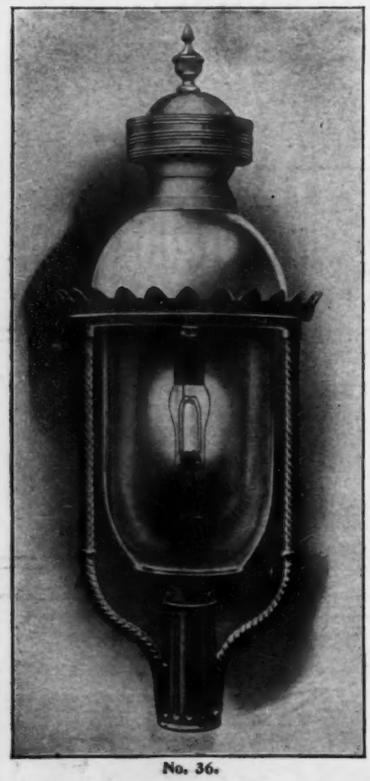

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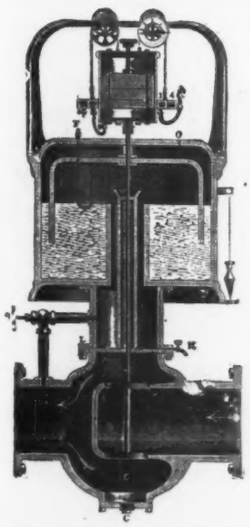

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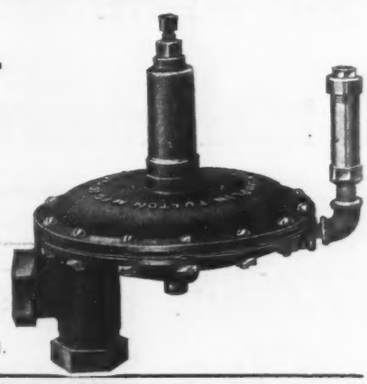

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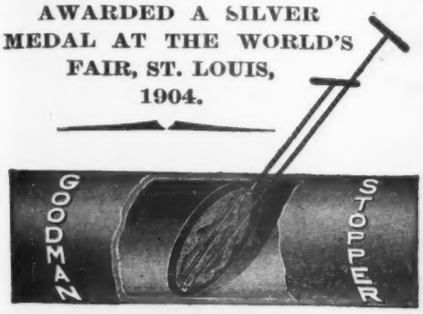

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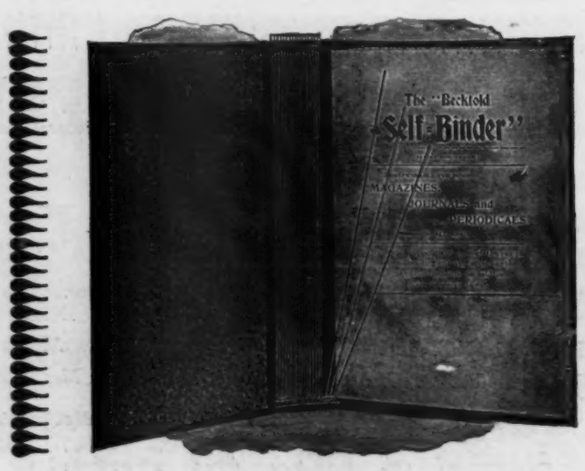

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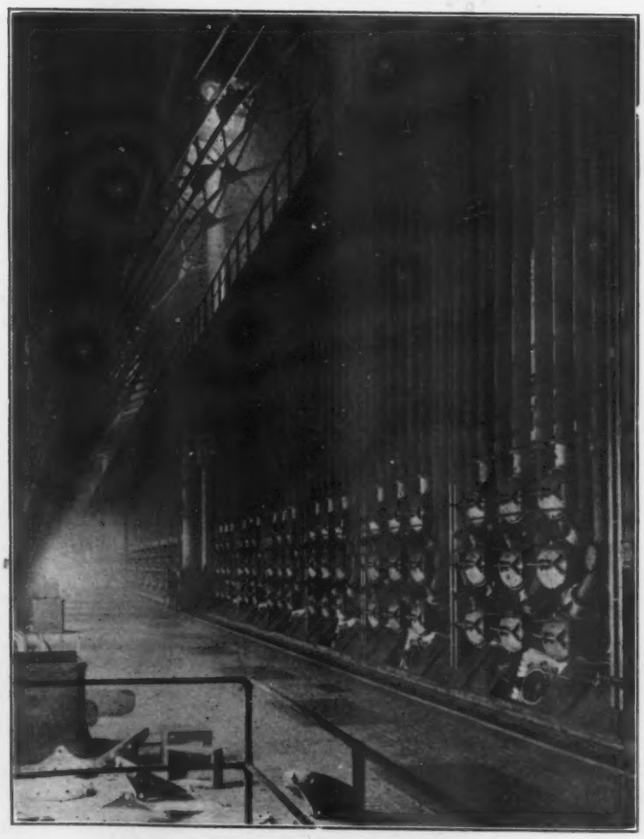

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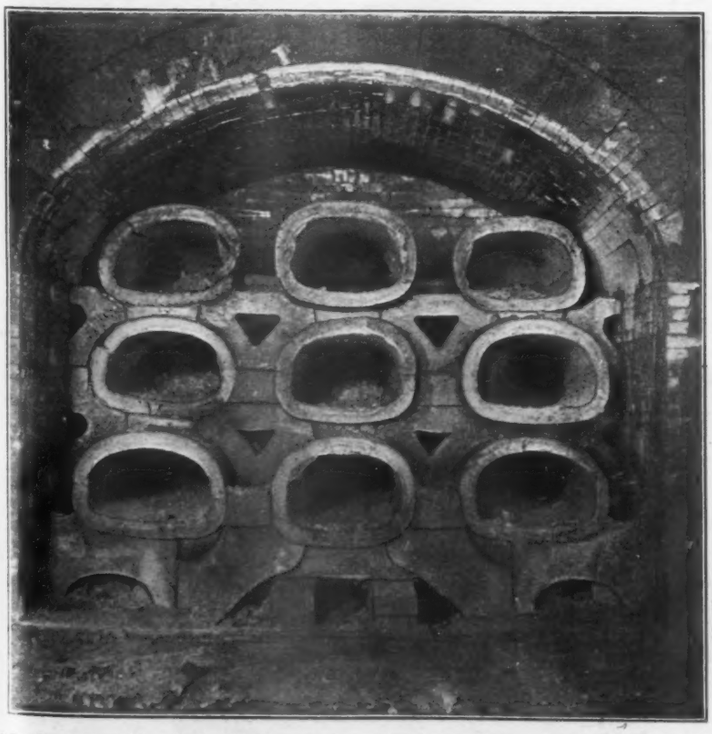

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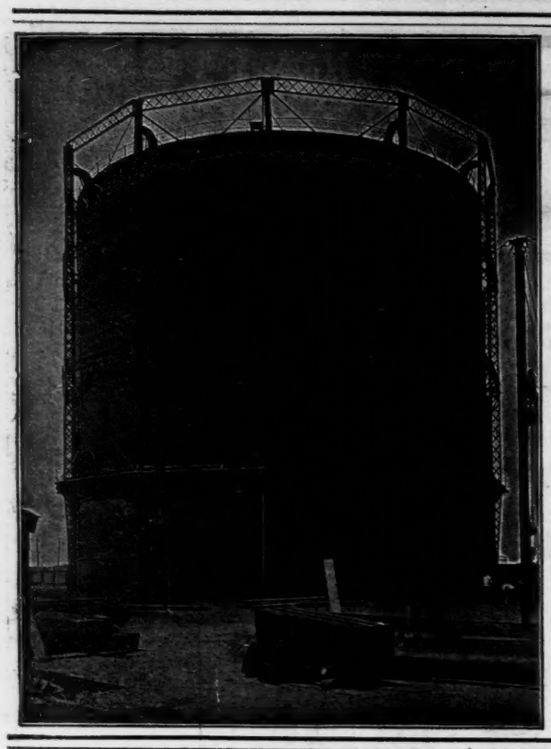

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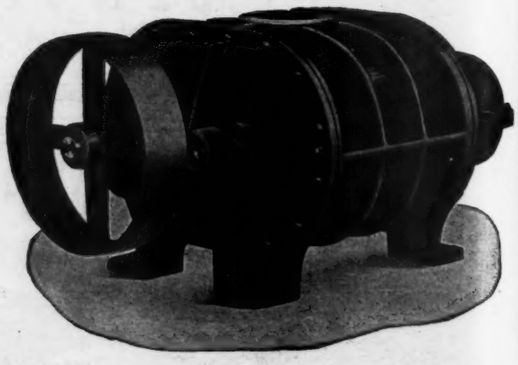

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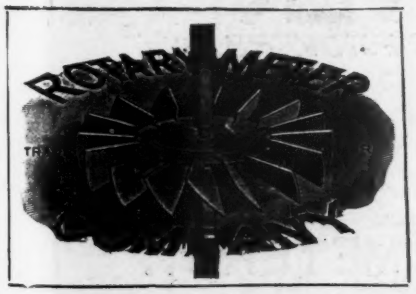

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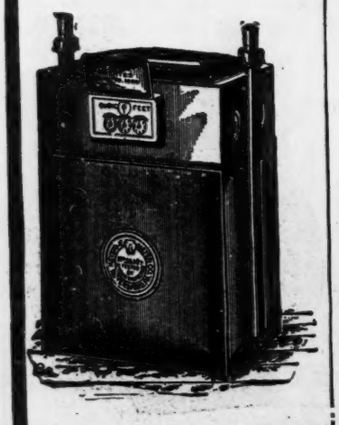

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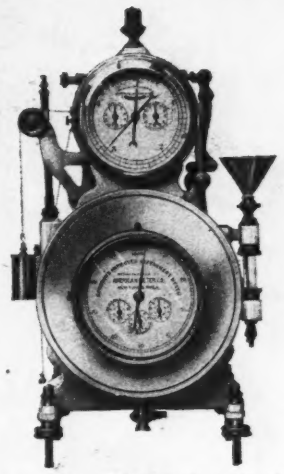

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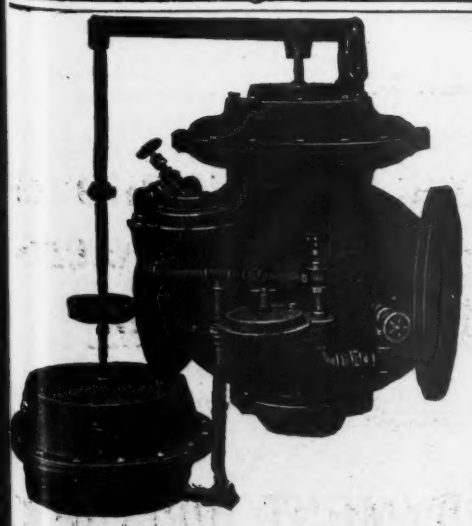

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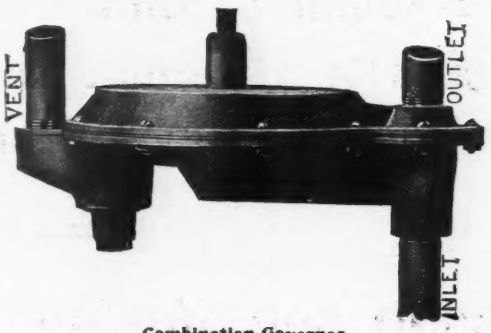

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